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Fresno County General Plan Update

Economic & Growth Scenarios

Perspectives on the Year 2020



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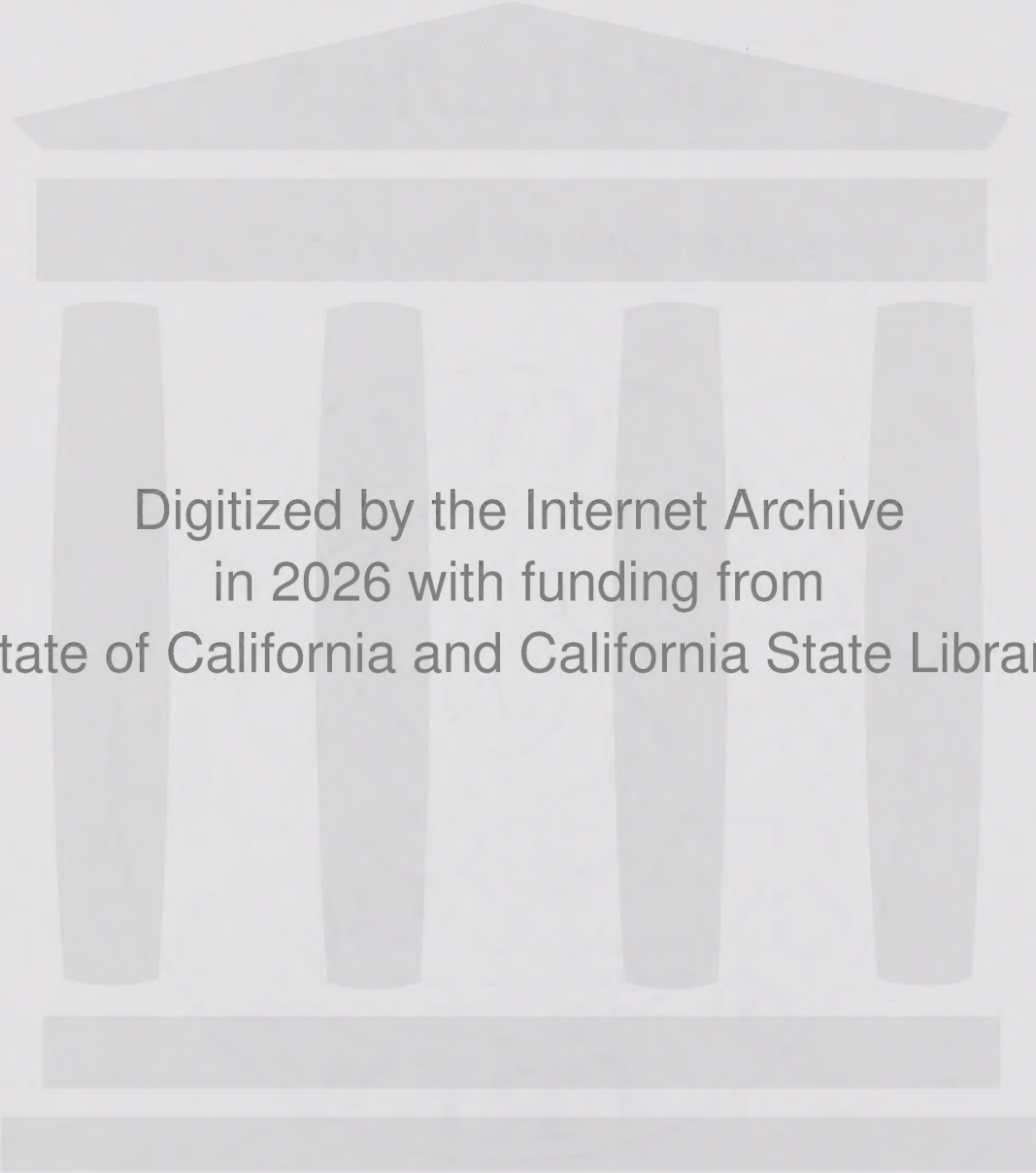
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INTRODUCTION

These technical appendices provide background documentation for the discussion and analysis contained in the Economic and Growth Scenarios Report. These appendices are organized to correspond directly to the structure of the main report. The following briefly describes what is included in each of the four appendices.

Conditions and Trends in Fresno County Today

This appendix includes statistical tables that are the basis of graphs and diagrams contained in the corresponding section of the main report. These tables were taken from the Draft General Plan Background Report.

How the Economic and Growth Scenarios Were Developed

This appendix includes an extensive set of statistical tables that were prepared in the process of developing the economic and growth scenarios. This process is described in the corresponding section of the main report.

These tables include information from various sources including the U.S. Census Bureau, the California Department of Finance, the Council of Fresno County Governments, and the Fresno Local Agency Formation Commission. The calculations in these tables are based upon assumptions and multipliers, which are described in the corresponding section of the main report.

The four economic and growth scenario combinations, which are described in the main report, are as follows:

- Scenario A - Continuing Current Trends
- Scenario B/C - Shifts in Agricultural Production/Value-Added Agriculture
- Scenario D - Non-Agricultural Basic Employment
- Scenario E - Population-Driven Growth

Economic and Growth Scenarios and Their Implications

This appendix consists of a set of ten working papers that include an analysis and comparison of the implications of the economic and growth scenarios. These papers are the primary basis of the analysis of scenarios contained in the corresponding section of the main report.

In reviewing the working papers, the reader should bear in mind the following:

1. The scope and level of analysis of the scenarios is designed to facilitate the policy choices the Board of Supervisors must make at this point in the General Plan Update process. Once a preferred scenario is selected and an Economic Development Strategy and a Draft General Plan have been prepared, the analysis of implications and environmental impacts will be much more inclusive and detailed. For example, the Draft Environmental Impact Report on the Draft General Plan will include an analysis of solid waste impacts and noise impacts, which are not addressed in these working papers, as they were found to be less critical to the selection of a preferred economic and growth scenario than other issues discussed.

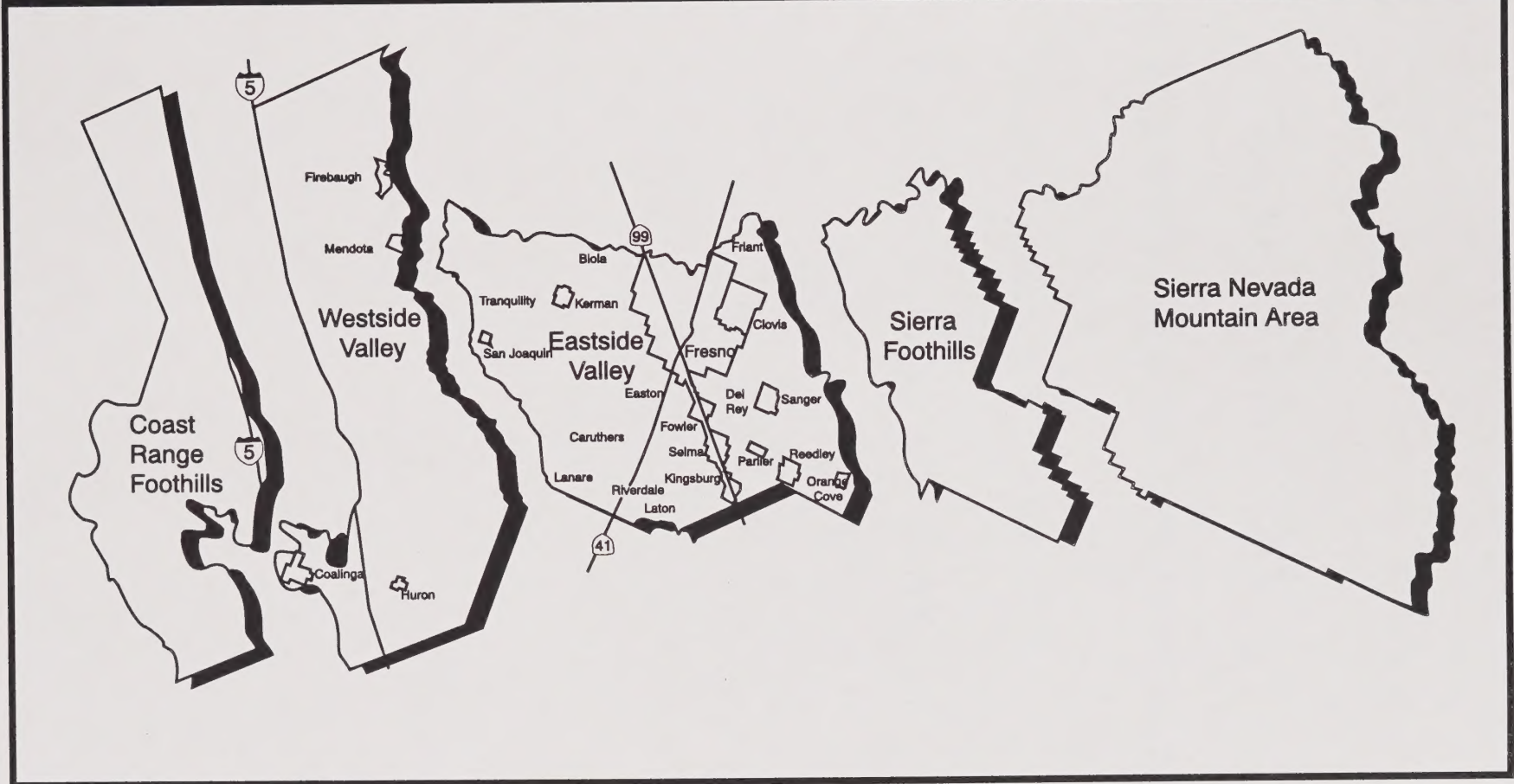
Similarly, later analysis will identify the need for and costs of building the full range of County facilities such as jails, not just the backbone infrastructure (i.e., roadway, water, sewer, and drainage facilities) discussed in these working papers.

2. The description of existing conditions in each working paper is based on information contained in the Draft General Plan Background Report prepared in May 1997. In some cases, the description of existing conditions has been revised and updated to reflect comments on the Draft Background Report and to reflect recent developments.
3. The various working papers are structured in a similar manner, but they vary in their approach to the analysis, depending on the nature of the topic and available information. Some papers (e.g., air quality, biological resources) take a countywide perspective; some focus on the five geographic areas; some (e.g., land use) focus equally on incorporated and unincorporated areas; some (e.g., infrastructure financing) focus primarily on unincorporated areas. In general, the analyses emphasize implications for unincorporated Fresno County and for Fresno County government, since these are areas over which the Board of Supervisors has legal authority and policy control. Figure 1 shows the five geographic areas and spheres of influence of the 15 incorporated cities that are referred to in the various working papers.
4. Each working paper starts with a set of key questions that are intended to frame the analysis. Obviously, there are other questions that could be addressed in the analysis, but these appeared to the General Plan Consultants and County Staff to be the most important to be addressed at this point in the General Plan Update process.
5. Economic and Growth Scenario A is considered the “base case” in the scenarios analysis, since it represents a continuation of current trends. The working papers generally focus most attention on Scenario A and use it as a reference point in the discussion of the other scenarios.

Fresno County Residents’ Views of Growth, Resources and Jobs

This appendix is an excerpt from *Fresno County and the Future: Residents’ Views of Growth, Resources and Jobs*. This report, published in July 1997, summarizes comments received from Fresno County residents during a series of 15 focus groups conducted by UC Cooperation Extension.

Figure 1
Fresno County Geographic Areas and City Spheres of Influence





TECHNICAL APPENDIX

CONDITIONS AND TRENDS IN FRESNO COUNTY TODAY

TABLE 1 TOTAL LABOR FORCE AND EMPLOYED WORKERS Fresno County 1985 to 1995		
<i>Year</i>	<i>Total Labor Force</i>	<i>Employed Labor Force</i>
1985	286,200	249,200
1986	292,200	256,100
1987	295,700	264,200
1988	307,400	274,300
1989	313,200	281,800
1990	327,300	289,100
1991	334,200	289,500
1992	348,200	293,500
1993	359,800	304,400
1994	369,200	318,300
1995	371,800	319,200
<i>Source: California Labor Market Information Division, 1985-95</i>		

TABLE 2 UNEMPLOYMENT RATE Fresno County and California 1985 to 1995		
<i>Year</i>	<i>Fresno County</i>	<i>California</i>
1985	12.9%	7.2%
1986	12.4%	6.7%
1987	10.7%	5.8%
1988	10.8%	5.3%
1989	10.0%	5.1%
1990	11.7%	5.8%
1991	13.4%	7.7%
1992	15.7%	9.3%
1993	15.4%	9.4%
1994	13.8%	8.6%
1995	14.1%	7.8%
<i>Source: California Labor Market Information Division, 1985-95</i>		

TABLE 3
EMPLOYMENT BY MAJOR ECONOMIC
SECTORS PERCENT OF TOTAL EMPLOYMENT
Fresno County, San Joaquin Valley, and California
1994

	<i>Fresno County</i>	<i>San Joaquin Valley</i>	<i>California</i>
Private Sector			
Agriculture	19.6%	17.9%	3.6%
Mining	0.2%	1.2%	0.2%
Construction	4.1%	4.0%	3.7%
Manufacturing	8.8%	10.7%	14.1%
Transp., Commun., & Utilities	4.0%	4.1%	4.8%
Wholesale Trade	4.8	4.1%	5.6%
Retail Trade	15.4%	16.8%	17.0%
Finance, Insurance, Real Estate	4.5%	3.8%	6.2%
Services	19.9%	18.3%	27.5%
Public Sector			
Federal Government	3.9%	3.2%	2.6%
State Government	2.3%	2.4%	3.2%
Local Government	12.4%	13.3%	10.9%
Non Classified	0.2%	0.2%	0.5%
TOTAL	100.0%	100.0%	100.0%
<i>Sources: Private-sector employment from ES202 data prepared by MIG, Inc., 1994;</i> <i>Public Sector employment from ES202 data prepared by the California</i> <i>Labor Market Information Division, 1994</i>			

TABLE 4 ETHNICITY OF FRESNO COUNTY'S POPULATION 1990		
<i>Ethnicity</i>	<i>Persons</i>	<i>Percent</i>
Hispanic	236,634	35%
White (Not Hispanic)	338,595	51%
African American	31,311	5%
Indian, Eskimo, or Aleut	5,070	1%
Asian/Pacific Islander	54,110	8%
Other	1,770	0.2%
Total	667,490	100%
<i>Source: U.S. Census Bureau</i>		

Fresno County General Plan Update		
Table 1: Summary of General Plan Updates		
Update Type	Update Description	Update Status
Land Use	Update of land use designations and policies.	In Progress
Transportation	Update of transportation planning and policies.	Completed
Water Resources	Update of water resource management and policies.	In Progress
Public Works	Update of public works planning and policies.	Completed
Community Development	Update of community development planning and policies.	In Progress
Environmental	Update of environmental planning and policies.	Completed
Health and Safety	Update of health and safety planning and policies.	In Progress
Other	Other updates and policies.	Completed

TECHNICAL APPENDIX

HOW THE ECONOMIC AND GROWTH SCENARIOS WERE DEVELOPED

TABLE 1
POPULATION AND EMPLOYMENT BY GEOGRAPHIC AREA
Base Year 1996

	<i>Population</i>	<i>Total Employment</i>	<i>Retail/ Local</i>	<i>Office</i>	<i>Industrial</i>	<i>Public/ Institutional</i>	<i>Agricultural Production</i>
FRESNO COUNTY TOTAL	761,832	370,779	98,216	29,324	93,280	63,626	86,333
COAST RANGE FOOTHILLS	271	33	23	9	1	1	0
WEST VALLEY TOTAL	41,322	26,367	2,826	695	7,094	1,994	13,760
Coalinga SOI	9,758	2,903	756	201	737	722	487
Firebaugh SOI	5,793	2,899	325	71	1,542	406	557
Huron SOI	6,203	3,957	224	52	2,407	188	1,087
Mendota SOI	8,539	4,348	334	123	2,398	296	1,197
Unincorporated West Valley	11,029	12,260	1,187	249	10	382	10,432
EAST VALLEY TOTAL	702,548	341,241	94,107	28,500	86,174	61,074	71,386
Clovis SOI	68,552	29,127	8,929	2,883	8,171	7,823	1,321
Fowler SOI	5,292	2,686	358	159	1,103	294	771
Fresno SOI	440,648	202,764	68,432	20,768	60,072	43,450	10,042
Kerman SOI	7,927	4,370	488	136	1,951	588	1,207
Kingsburg SOI	8,950	4,093	1,018	340	1,468	528	740
Orange Cove SOI	7,113	1,409	304	113	492	232	268
Parlier SOI	9,865	2,987	385	159	1,327	512	605
Reedley SOI	20,714	14,519	2,308	717	6,776	1,333	3,385
San Joaquin SOI	3,680	679	166	47	152	204	110
Sanger SOI	21,356	8,322	1,760	650	2,941	1,324	1,647
Selma SOI	21,643	6,318	2,353	419	1,604	784	1,157
Unincorporated East Valley	86,808	63,966	7,607	2,109	118	4,000	50,132
SIERRA FOOTHILLS	11,607	2,234	596	61	5	382	1,189
SIERRA NEVADA MOUNTAINS	6,083	906	664	59	6	176	0
SOI = Sphere of Influence							
Sources: Council of Fresno County Governments; Applied Development Economics							

TABLE 2

**ASSUMED CHANGES IN PRODUCTIVE ACREAGE
BY CROP TYPE FOR SCENARIO B**

CROP	PRODUCTIVE ACRES		
	Estimated 1995	Change 1995-2020	Projected 2020
Cotton	404,300	(172,467)	231,833
Food Grains	90,474	(35,876)	54,598
Feed Grains	36,890	(14,629)	22,261
Hay	80,300	(17,841)	62,459
Pasture & Range	909,000	(95,138)	813,862
Fruits	301,067	185,552	486,619
Tree Nuts	48,034	35,286	83,320
Vegetables	129,955	123,306	253,262
Sugar Crops	23,000	(9,120)	13,880
Nursery Products	451	1,485	1,936
TOTAL	2,023,471	558	2,024,029
Note: The projections reflect the trends in crop production (measured in dollar values) per acre between 1985 and 1995 derived from data provided in the annual Fresno County Agricultural Reports, but assume that the rates of change in productivity as well as the rates of growth and decline in individual crop types, will accelerate in the future. Acreage data for livestock and dairy production were not available.			
<i>Source: Applied Development Economics.</i>			

TABLE 3

EMPLOYMENT PROFILE COMPARISON

	1996		2020							
			SCENARIO A		SCENARIO B/C		SCENARIO D		SCENARIO E	
	Existing		Current Trends		Ag. Prod./Value-Added Ag.		Non-Ag. Basic Employment		Population Driven	
Total Population	761,832		1,410,618		1,443,536		1,471,077		1,505,500	
Total Employment	370,779	100%	636,317	100%	711,696	100%	725,261	100%	709,844	100%
Retail/Local	98,216	26%	170,030	27%	145,550	20%	150,278	21%	176,136	25%
Office	29,324	8%	86,649	14%	93,500	13%	161,497	22%	104,258	15%
Industrial	93,280	25%	118,819	19%	174,545	25%	155,737	21%	158,202	22%
Public/Institutional	63,626	17%	114,344	18%	139,500	20%	141,117	19%	145,165	20%
Agricultural Production	86,333	23%	146,475	23%	158,602	22%	116,633	16%	126,083	18%

TABLE 4.1

SCENARIO A - CURRENT TRENDS
SUMMARY OF POPULATION AND EMPLOYMENT
1996 - 2020

	1996		INCREMENT		2020 TOTAL	
	Population	Total Employment	Population	Total Employment	Population	Total Employment
FRESNO COUNTY TOTAL	761,832	370,779	648,786	265,538	1,410,618	636,317
COAST RANGE FOOTHILLS	271	33	231	44	502	77
WEST VALLEY TOTAL	41,322	26,367	35,190	18,794	76,512	45,161
Coalinga SOI	9,758	2,903	8,310	2,671	18,068	5,574
Firebaugh SOI	5,793	2,899	4,933	3,078	10,726	5,978
Huron SOI	6,203	3,957	5,283	1,440	11,486	5,397
Mendota SOI	8,539	4,348	7,272	2,544	15,811	6,892
Unincorporated West Valley	11,029	12,260	9,392	9,061	20,421	21,321
EAST VALLEY TOTAL	702,548	341,241	598,299	242,153	1,300,848	583,393
Clovis SOI	68,552	29,127	58,380	35,303	126,932	64,430
Fowler SOI	5,292	2,686	4,507	2,951	9,799	5,637
Fresno SOI	440,648	202,764	375,262	122,320	815,910	325,084
Kerman SOI	7,927	4,370	6,751	2,263	14,678	6,633
Kingsburg SOI	8,950	4,093	7,622	4,417	16,572	8,510
Orange Cove SOI	7,113	1,409	6,058	1,299	13,171	2,708
Parlier SOI	9,865	2,987	8,401	1,902	18,266	4,890
Reedley SOI	20,714	14,519	17,640	8,428	38,354	22,947
San Joaquin SOI	3,680	679	3,134	683	6,814	1,362
Sanger SOI	21,356	8,322	18,187	6,106	39,543	14,427
Selma SOI	21,643	6,318	18,431	6,650	40,074	12,968
Unincorporated East Valley	86,808	63,966	73,927	49,830	160,735	113,796
SIERRA FOOTHILLS	11,607	2,234	9,885	3,569	21,492	5,803
SIERRA NEVADA MOUNTAINS	6,083	906	5,181	978	11,264	1,884

TABLE 4.2

**SCENARIO B/C - SHIFTS IN AGRICULTURAL PRODUCTION/VALUE-ADDED AGRICULTURE
SUMMARY OF POPULATION AND EMPLOYMENT
1996 - 2020**

	1996		INCREMENT		2020 TOTAL	
	Population	Total Employment	Population	Total Employment	Population	Total Employment
FRESNO COUNTY TOTAL	761,832	370,779	681,704	340,917	1,443,536	711,696
COAST RANGE FOOTHILLS	271	33	59	11	331	44
WEST VALLEY TOTAL	41,322	26,367	52,657	30,027	93,979	56,395
Coalinga SOI	9,758	2,903	4,998	2,869	14,756	5,772
Firebaugh SOI	5,793	2,899	12,557	8,127	18,350	11,027
Huron SOI	6,203	3,957	5,148	1,736	11,351	5,694
Mendota SOI	8,539	4,348	8,801	4,033	17,340	8,381
Unincorporated West Valley	11,029	12,260	21,152	13,261	32,181	25,522
EAST VALLEY TOTAL	702,548	341,241	584,730	300,493	1,287,278	641,733
Clovis SOI	68,552	29,127	56,491	42,424	125,043	71,551
Fowler SOI	5,292	2,686	6,370	3,767	11,662	6,453
Fresno SOI	440,648	202,764	238,050	129,834	678,698	332,598
Kerman SOI	7,927	4,370	6,927	2,647	14,854	7,018
Kingsburg SOI	8,950	4,093	16,498	10,340	25,448	14,433
Orange Cove SOI	7,113	1,409	2,154	618	9,267	2,027
Parlier SOI	9,865	2,987	3,661	1,070	13,526	4,057
Reedley SOI	20,714	14,519	20,670	10,221	41,384	24,740
San Joaquin SOI	3,680	679	3,148	687	6,828	1,366
Sanger SOI	21,356	8,322	16,306	8,723	37,662	17,044
Selma SOI	21,643	6,318	18,506	8,271	40,149	14,589
Unincorporated East Valley	86,808	63,966	195,949	81,892	282,757	145,858
SIERRA FOOTHILLS	11,607	2,234	40,144	9,643	51,752	11,877
SIERRA NEVADA MOUNTAINS	6,083	906	4,113	743	10,197	1,649

TABLE 4.3

**SCENARIO D - NON-AGRICULTURAL BASIC EMPLOYMENT
SUMMARY OF POPULATION AND EMPLOYMENT
1996 - 2020**

	1996		GROWTH INCREMENT		2020 TOTAL	
	Population	Total Employment	Population	Total Employment	Population	Total Employment
FRESNO COUNTY TOTAL	761,832	370,779	709,245	354,482	1,471,077	725,261
COAST RANGE FOOTHILLS	271	33	62	11	334	45
WEST VALLEY TOTAL	41,322	26,367	34,763	17,579	76,085	43,947
Coalinga SOI	9,758	2,903	4,440	2,551	14,198	5,454
Firebaugh SOI	5,793	2,899	8,112	5,490	13,905	8,389
Huron SOI	6,203	3,957	4,386	1,174	10,589	5,131
Mendota SOI	8,539	4,348	6,318	2,388	14,857	6,735
Unincorporated West Valley	11,029	12,260	11,508	5,977	22,536	18,237
EAST VALLEY TOTAL	702,548	341,241	616,037	325,284	1,318,586	666,524
Clovis SOI	68,552	29,127	85,572	70,052	154,124	99,179
Fowler SOI	5,292	2,686	9,164	5,657	14,456	8,343
Fresno SOI	440,648	202,764	285,212	160,646	725,860	363,410
Kerman SOI	7,927	4,370	6,612	2,359	14,539	6,729
Kingsburg SOI	8,950	4,093	10,969	7,037	19,919	11,130
Orange Cove SOI	7,113	1,409	2,059	520	9,172	1,929
Parlier SOI	9,865	2,987	3,327	782	13,192	3,769
Reedley SOI	20,714	14,519	26,804	14,256	47,518	28,775
San Joaquin SOI	3,680	679	3,165	634	6,845	1,313
Sanger SOI	21,356	8,322	11,475	5,663	32,831	13,985
Selma SOI	21,643	6,318	21,739	10,323	43,382	16,641
Unincorporated East Valley	86,808	63,966	149,942	47,355	236,750	111,321
SIERRA FOOTHILLS	11,607	2,234	54,066	10,819	65,674	13,053
SIERRA NEVADA MOUNTAINS	6,083	906	4,315	788	10,399	1,694

TABLE 4.4

**SCENARIO E - POPULATION-DRIVEN GROWTH
SUMMARY OF POPULATION AND EMPLOYMENT
1996 - 2020**

	1996		GROWTH INCREMENT		2020 TOTAL	
	Population	Total Employment	Population	Total Employment	Population	Total Employment
FRESNO COUNTY TOTAL	761,832	370,779	743,668	339,065	1,505,500	709,844
COAST RANGE FOOTHILLS	271	33	204	36	475	69
WEST VALLEY TOTAL	41,322	26,367	38,732	21,027	80,054	47,395
Coalinga SOI	9,758	2,903	2,182	2,189	11,940	5,092
Firebaugh SOI	5,793	2,899	2,239	4,894	8,032	7,794
Huron SOI	6,203	3,957	10,307	2,619	16,510	6,576
Mendota SOI	8,539	4,348	11,379	3,910	19,918	8,258
Unincorporated West Valley	11,029	12,260	12,624	7,416	23,653	19,676
EAST VALLEY TOTAL	702,548	341,241	675,347	310,990	1,377,895	652,231
Clovis SOI	68,552	29,127	85,524	48,253	154,076	77,380
Fowler SOI	5,292	2,686	2,670	3,466	7,962	6,151
Fresno SOI	440,648	202,764	174,378	125,386	615,026	328,149
Kerman SOI	7,927	4,370	12,115	3,616	20,042	7,987
Kingsburg SOI	8,950	4,093	4,697	6,270	13,647	10,363
Orange Cove SOI	7,113	1,409	4,933	1,181	12,046	2,591
Parlier SOI	9,865	2,987	8,101	1,946	17,966	4,934
Reedley SOI	20,714	14,519	23,032	11,470	43,746	25,990
San Joaquin SOI	3,680	679	8,582	1,828	12,262	2,507
Sanger SOI	21,356	8,322	13,693	6,786	35,049	15,107
Selma SOI	21,643	6,318	26,511	10,871	48,154	17,189
Unincorporated East Valley	86,808	63,966	311,112	89,917	397,920	153,883
SIERRA FOOTHILLS	11,607	2,234	16,977	4,528	28,584	6,762
SIERRA NEVADA MOUNTAINS	6,083	906	12,409	2,483	18,492	3,389

TABLE 5.1

SCENARIO A - CURRENT TRENDS
GEOGRAPHIC ALLOCATION OF POPULATION AND EMPLOYMENT
Growth Increment (1996-2020)

	<i>Population</i>	<i>Total Employment</i>	<i>Retail/ Location</i>	<i>Office</i>	<i>Industrial</i>	<i>Public/ Institutional</i>	<i>Agricultural Production</i>
FRESNO COUNTY TOTAL	648,786	265,538	71,814	57,325	25,539	50,718	60,142
COAST RANGE FOOTHILLS	231	44	26	0	0	18	0
WEST VALLEY TOTAL	35,190	18,794	3,895	714	2,297	2,751	9,137
Coalinga SOI	8,310	2,671	920	382	286	650	434
Firebaugh SOI	4,933	3,078	546	272	1,400	386	474
Huron SOI	5,283	1,440	585	2	97	413	343
Mendota SOI	7,272	2,544	805	22	384	568	766
Unincorporated West Valley	9,392	9,061	1,040	36	131	734	7,120
EAST VALLEY TOTAL	598,299	242,153	66,226	56,602	23,176	46,771	49,377
Clovis SOI	58,380	35,303	6,462	21,098	2,245	4,564	934
Fowler SOI	4,507	2,951	499	1,216	290	352	594
Fresno SOI	375,262	122,320	41,538	29,812	14,072	29,336	7,563
Kerman SOI	6,751	2,263	747	123	188	528	676
Kingsburg SOI	7,622	4,417	844	782	1,380	596	816
Orange Cove SOI	6,058	1,299	671	11	24	474	121
Parlier SOI	8,401	1,902	930	0	10	657	306
Reedley SOI	17,640	8,428	1,953	2,554	865	1,379	1,678
San Joaquin SOI	3,134	683	347	0	5	245	87
Sanger SOI	18,187	6,106	2,013	394	959	1,422	1,317
Selma SOI	18,431	6,650	2,040	479	1,560	1,441	1,130
Unincorporated East Valley	73,927	49,830	8,183	133	1,579	5,779	34,156
SIERRA FOOTHILLS	9,885	3,569	1,094	9	66	773	1,628
SIERRA NEVADA MOUNTAINS	5,181	978	573	0	0	405	0

TABLE 5.2

**SCENARIO B/C - SHIFTS IN AGRICULTURAL PRODUCTION/VALUE-ADDED AGRICULTURE
GEOGRAPHIC ALLOCATION OF POPULATION AND EMPLOYMENT
Growth Increment (1996-2020)**

	<i>Population</i>	<i>Total Employment</i>	<i>Retail/ Local</i>	<i>Office</i>	<i>Industrial</i>	<i>Public/ Institutional</i>	<i>Agricultural Production</i>
FRESNO COUNTY TOTAL	681,704	340,917	47,334	64,176	81,264	75,874	72,269
COAST RANGE FOOTHILLS	59	11	4	0	0	7	0
WEST VALLEY TOTAL	52,657	30,027	3,656	799	8,732	5,861	10,979
Coalinga SOI	4,998	2,869	347	427	1,017	556	521
Firebaugh SOI	12,557	8,127	872	305	4,983	1,398	570
Huron SOI	5,148	1,736	357	2	391	573	413
Mendota SOI	8,801	4,033	611	24	1,498	980	920
Unincorporated West Valley	21,152	13,261	1,469	40	842	2,354	8,556
EAST VALLEY TOTAL	584,730	300,493	40,601	63,367	72,111	65,081	59,334
Clovis SOI	56,491	42,424	3,922	23,620	7,472	6,287	1,122
Fowler SOI	6,370	3,767	442	1,361	541	709	713
Fresno SOI	238,050	129,834	16,529	33,375	44,347	26,495	9,088
Kerman SOI	6,927	2,647	481	138	445	771	813
Kingsburg SOI	16,498	10,340	1,146	875	5,502	1,836	981
Orange Cove SOI	2,154	618	150	12	72	240	145
Parlier SOI	3,661	1,070	254	0	41	408	367
Reedley SOI	20,670	10,221	1,435	2,859	1,610	2,301	2,016
San Joaquin SOI	3,148	687	219	0	14	350	104
Sanger SOI	16,306	8,723	1,132	442	3,751	1,815	1,583
Selma SOI	18,506	8,271	1,285	537	3,033	2,060	1,357
Unincorporated East Valley	195,949	81,892	13,606	149	5,285	21,809	41,043
SIERRA FOOTHILLS	40,144	9,643	2,787	10	421	4,468	1,956
SIERRA NEVADA MOUNTAINS	4,113	743	286	0	0	458	0

TABLE 5.3

**SCENARIO D - NON-AGRICULTURAL BASIC EMPLOYMENT
GEOGRAPHIC ALLOCATION OF POPULATION AND EMPLOYMENT
Growth Increment (1996-2020)**

	<i>Population</i>	<i>Total Employment</i>	<i>Retail/ Local</i>	<i>Office</i>	<i>Industrial</i>	<i>Public/ Institutional</i>	<i>Agricultural Production</i>
FRESNO COUNTY TOTAL	709,245	354,482	52,062	132,173	62,456	77,491	30,300
COAST RANGE FOOTHILLS	62	11	5	0	0	7	0
WEST VALLEY TOTAL	34,763	17,579	2,552	1,646	4,980	3,798	4,603
Coalinga SOI	4,440	2,551	326	880	641	485	218
Firebaugh SOI	8,112	5,490	595	628	3,141	886	239
Huron SOI	4,386	1,174	322	4	196	479	173
Mendota SOI	6,318	2,388	464	50	798	690	386
Unincorporated West Valley	11,508	5,977	845	83	205	1,257	3,587
EAST VALLEY TOTAL	616,037	325,284	45,220	130,506	57,373	67,307	24,877
Clovis SOI	85,572	70,052	6,281	48,646	5,305	9,349	471
Fowler SOI	9,164	5,657	673	2,804	881	1,001	299
Fresno SOI	285,212	160,646	20,936	68,736	36,001	31,162	3,810
Kerman SOI	6,612	2,359	485	284	527	722	341
Kingsburg SOI	10,969	7,037	805	1,803	2,819	1,198	411
Orange Cove SOI	2,059	520	151	25	58	225	61
Parlier SOI	3,327	782	244	0	20	363	154
Reedley SOI	26,804	14,256	1,968	5,888	2,627	2,929	845
San Joaquin SOI	3,165	634	232	0	12	346	44
Sanger SOI	11,475	5,663	842	910	1,994	1,254	664
Selma SOI	21,739	10,323	1,596	1,105	4,678	2,375	569
Unincorporated East Valley	149,942	47,355	11,006	306	2,451	16,382	17,208
SIERRA FOOTHILLS	54,066	10,819	3,969	21	102	5,907	820
SIERRA NEVADA MOUNTAINS	4,315	788	317	0	0	471	0

TABLE 5.4

SCENARIO E - POPULATION-DRIVEN GROWTH
GEOGRAPHIC ALLOCATION OF POPULATION AND EMPLOYMENT
Growth Increment (1996-2020)

	<i>Population</i>	<i>Total Employment</i>	<i>Retail/ Local</i>	<i>Office</i>	<i>Industrial</i>	<i>Public/ Institutional</i>	<i>Agricultural Production</i>
FRESNO COUNTY TOTAL	743,668	339,065	77,920	74,934	64,922	81,539	39,750
COAST RANGE FOOTHILLS	204	36	18	0	0	18	0
WEST VALLEY TOTAL	38,732	21,027	4,002	933	5,865	4,188	6,039
Coalinga SOI	2,182	2,189	326	499	736	341	287
Firebaugh SOI	2,239	4,894	301	356	3,609	315	313
Huron SOI	10,307	2,619	1,045	2	251	1,093	227
Mendota SOI	11,379	3,910	1,164	28	993	1,218	506
Unincorporated West Valley	12,624	7,416	1,167	47	274	1,221	4,706
EAST VALLEY TOTAL	675,347	310,990	71,072	73,989	58,920	74,373	32,635
Clovis SOI	85,524	48,253	6,993	27,579	5,745	7,318	617
Fowler SOI	2,670	3,466	368	1,590	731	385	392
Fresno SOI	174,378	125,386	21,871	38,969	36,660	22,886	4,999
Kerman SOI	12,115	3,616	1,237	161	477	1,294	447
Kingsburg SOI	4,697	6,270	553	1,022	3,577	578	539
Orange Cove SOI	4,933	1,181	502	14	60	525	80
Parlier SOI	8,101	1,946	840	0	26	879	202
Reedley SOI	23,032	11,470	2,367	3,338	2,180	2,477	1,109
San Joaquin SOI	8,582	1,828	859	0	12	899	57
Sanger SO	13,693	6,786	1,425	516	2,484	1,491	871
Selma SOI	26,511	10,871	2,718	627	3,936	2,844	747
Unincorporated East Valley	311,112	89,917	31,341	174	3,030	32,797	22,575
SIERRA FOOTHILLS	16,977	4,528	1,614	12	137	1,689	1,076
SIERRA NEVADA MOUNTAINS	12,409	2,483	1,213	0	0	1,270	0

TABLE 6.1

SCENARIO A - CURRENT TRENDS
GEOGRAPHIC ALLOCATION OF TOTAL POPULATION AND EMPLOYMENT
2020 Total

	<i>Population</i>	<i>Total Employment</i>	<i>Retail/ Local</i>	<i>Office</i>	<i>Industrial</i>	<i>Public/ Institutional</i>	<i>Agricultural Production</i>
FRESNO COUNTY TOTAL	1,410,618	636,317	170,030	86,649	118,819	114,344	146,475
COAST RANGE FOOTHILLS	502	77	48	9	1	19	0
WEST VALLEY TOTAL	76,512	45,161	6,721	1,409	9,391	4,744	22,896
Coalinga SOI	18,068	5,574	1,676	583	1,023	1,372	921
Firebaugh SOI	10,726	5,978	871	343	2,942	792	1,031
Huron SOI	11,486	5,397	808	54	2,503	601	1,430
Mendota SOI	15,811	6,892	1,139	145	2,782	864	1,962
Unincorporated West Valley	20,421	21,321	2,227	285	141	1,116	17,553
EAST VALLEY TOTAL	1,300,848	583,393	160,333	85,102	109,350	107,845	120,763
Clovis SOI	126,932	64,430	15,391	23,981	10,416	12,387	2,255
Fowler SOI	9,799	5,637	857	1,375	1,393	647	1,365
Fresno SOI	815,910	325,084	109,969	50,580	74,144	72,785	17,605
Kerman SOI	14,678	6,633	1,235	259	2,139	1,116	1,884
Kingsburg SOI	16,572	8,510	1,861	1,121	2,847	1,124	1,556
Orange Cove SOI	13,171	2,708	975	124	515	706	388
Parlier SOI	18,266	4,890	1,314	159	1,337	1,168	911
Reedley SOI	38,354	22,947	4,261	3,271	7,641	2,712	5,063
San Joaquin SOI	6,814	1,362	513	47	156	449	197
Sanger SOI	39,543	14,427	3,773	1,044	3,900	2,746	2,964
Selma SOI	40,074	12,968	4,393	899	3,165	2,225	2,287
Unincorporated East Valley	160,735	113,796	15,790	2,242	1,697	9,779	84,288
SIERRA FOOTHILLS	21,492	5,803	1,691	70	71	1,155	2,817
SIERRA NEVADA MOUNTAINS	11,264	1,884	1,238	59	6	581	0

TABLE 6.2

**SCENARIO B/C - SHIFTS IN AGRICULTURAL PRODUCTION/VALUE-ADDED AGRICULTURE
GEOGRAPHIC ALLOCATION OF TOTAL POPULATION AND EMPLOYMENT
2020 Total**

	<i>Population</i>	<i>Total Employment</i>	<i>Retail/ Local</i>	<i>Office</i>	<i>Industrial</i>	<i>Public/ Institutional</i>	<i>Agricultural Production</i>
FRESNO COUNTY TOTAL	1,443,536	711,696	145,550	93,500	174,544	139,500	158,602
COAST RANGE FOOTHILLS	331	44	27	9	1	7	0
WEST VALLEY TOTAL	93,979	56,395	6,482	1,494	15,826	7,854	24,739
Coalinga SOI	14,756	5,772	1,103	628	1,754	1,278	1,008
Firebaugh SOI	18,350	11,027	1,196	375	6,525	1,804	1,126
Huron SOI	11,351	5,694	581	54	2,798	761	1,499
Mendota SOI	17,340	8,381	945	147	3,897	1,275	2,117
Unincorporated West Valley	32,181	25,522	2,656	289	852	2,736	18,988
EAST VALLEY TOTAL	1,287,278	641,733	134,708	91,866	158,285	126,154	130,720
Clovis SOI	125,043	71,551	12,852	26,503	15,643	14,110	2,443
Fowler SOI	11,662	6,453	801	1,520	1,644	1,003	1,484
Fresno SOI	678,698	332,598	84,961	54,143	104,419	69,945	19,130
Kerman SOI	14,854	7,018	969	273	2,396	1,359	2,020
Kingsburg SOI	25,448	14,433	2,163	1,215	6,969	2,364	1,721
Orange Cove SOI	9,267	2,027	454	125	563	472	413
Parlier SOI	13,526	4,057	639	159	1,368	919	972
Reedley SOI	41,384	24,740	3,744	3,576	8,386	3,633	5,401
San Joaquin SOI	6,828	1,366	384	47	166	555	215
Sanger SOI	37,662	17,044	2,892	1,091	6,691	3,139	3,230
Selma SOI	40,149	14,589	3,638	956	4,637	2,844	2,515
Unincorporated East Valley	282,757	145,858	21,213	2,258	5,403	25,809	91,175
SIERRA FOOTHILLS	51,752	11,877	3,384	71	426	4,850	3,145
SIERRA NEVADA MOUNTAINS	10,197	1,649	950	59	6	634	0

TABLE 6.3

**SCENARIO D - NON-AGRICULTURAL BASIC EMPLOYMENT
GEOGRAPHIC ALLOCATION OF TOTAL POPULATION AND EMPLOYMENT
2020 Total**

	<i>Population</i>	<i>Total Employment</i>	<i>Retail/ Local</i>	<i>Office</i>	<i>Industrial</i>	<i>Public/ Institutional</i>	<i>Agricultural Production</i>
FRESNO COUNTY TOTAL	1,471,077	725,261	150,278	161,497	155,736	141,117	116,633
COAST RANGE FOOTHILLS	334	45	27	9	1	7	0
WEST VALLEY TOTAL	76,085	43,947	5,377	2,341	12,074	5,792	18,363
Coalinga SOI	14,198	5,454	1,082	1,081	1,378	1,207	706
Firebaugh SOI	13,905	8,389	920	698	4,683	1,292	796
Huron SOI	10,589	5,131	546	56	2,602	667	1,260
Mendota SOI	14,857	6,735	797	173	3,196	986	1,583
Unincorporated West Valley	22,536	18,237	2,032	332	215	1,639	14,020
EAST VALLEY TOTAL	1,318,586	666,524	139,328	159,006	143,547	128,381	96,263
Clovis SOI	154,124	99,179	15,211	51,529	13,476	17,172	1,791
Fowler SOI	14,456	8,343	1,031	2,963	1,984	1,296	1,070
Fresno SOI	725,860	363,410	89,368	89,505	96,074	74,611	13,853
Kerman SOI	14,539	6,729	973	419	2,478	1,311	1,548
Kingsburg SOI	19,919	11,130	1,823	2,142	4,287	1,727	1,151
Orange Cove SOI	9,172	1,929	455	138	550	457	329
Parlier SOI	13,192	3,769	629	159	1,347	875	759
Reedley SOI	47,518	28,775	4,276	6,605	9,402	4,261	4,231
San Joaquin SOI	6,845	1,313	398	47	164	550	154
Sanger SOI	32,831	13,985	2,602	1,559	4,935	2,578	2,311
Selma SOI	43,382	16,641	3,948	1,525	6,282	3,160	1,726
Unincorporated East Valley	236,750	111,321	18,614	2,415	2,569	20,383	67,340
SIERRA FOOTHILLS	65,674	13,053	4,565	82	107	6,289	2,009
SIERRA NEVADA MOUNTAINS	10,399	1,694	981	59	6	648	0

TABLE 6.4

SCENARIO E - POPULATION-DRIVEN GROWTH
GEOGRAPHIC ALLOCATION OF TOTAL POPULATION AND EMPLOYMENT
2020 Total

	<i>Population</i>	<i>Total Employment</i>	<i>Retail/ Local</i>	<i>Office</i>	<i>Industrial</i>	<i>Public/ Institutional</i>	<i>Agricultural Production</i>
FRESNO COUNTY TOTAL	1,505,500	709,844	176,136	104,258	158,202	145,165	126,083
COAST RANGE FOOTHILLS	475	69	40	9	1	19	0
WEST VALLEY TOTAL	80,054	47,395	6,828	1,628	12,959	6,182	19,798
Coalinga SOI	11,940	5,092	1,082	700	1,474	1,063	774
Firebaugh SOI	8,032	7,794	625	427	5,151	721	870
Huron SOI	16,510	6,576	1,269	54	2,658	1,282	1,314
Mendota SOI	19,918	8,258	1,498	152	3,392	1,514	1,703
Unincorporated West Valley	23,653	19,676	2,354	296	284	1,603	15,138
EAST VALLEY TOTAL	1,377,895	652,231	165,180	102,489	145,094	135,447	104,021
Clovis SOI	154,076	77,380	15,922	30,462	13,916	15,141	1,938
Fowler SOI	7,962	6,151	726	1,748	1,834	679	1,163
Fresno SOI	615,026	328,149	90,302	59,738	96,733	66,336	15,041
Kerman SOI	20,042	7,987	1,724	297	2,429	1,883	1,654
Kingsburg SOI	13,647	10,363	1,570	1,362	5,045	1,107	1,280
Orange Cove SOI	12,046	2,591	806	127	552	758	348
Parlier SOI	17,966	4,934	1,224	159	1,353	1,390	807
Reedley SOI	43,746	25,990	4,675	4,055	8,955	3,809	4,494
San Joaquin SOI	12,262	2,507	1,025	47	164	1,104	168
Sanger SOI	35,049	15,107	3,185	1,165	5,424	2,815	2,518
Selma SOI	48,154	17,189	5,070	1,046	5,540	3,628	1,904
Unincorporated East Valley	397,920	153,883	38,949	2,283	3,148	36,797	72,707
SIERRA FOOTHILLS	28,584	6,762	2,211	73	142	2,071	2,265
SIERRA NEVADA MOUNTAINS	18,492	3,389	1,878	59	6	1,446	0

TABLE 7

**HOUSEHOLD SIZE AND SINGLE FAMILY/MULTI-FAMILY RATIOS
1995 and 1995-2020 Growth**

AREA	HH SIZE		SF/MF RATIOS			
	1995	Growth	1995		GROWTH	
			SF 1995	MF 1995	SF Growth	MF Growth
FRESNO COUNTY TOTAL	3.0157	3.2801	66%	34%	73%	27%
COAST RANGE FOOTHILLS	2.7848	2.6667	56%	42%	53%	43%
WEST VALLEY						
Coalinga SOI	2.9471	4.9803	71%	29%	76%	24%
Firebaugh SOI	3.7473	3.6731	67%	33%	65%	35%
Huron SOI	4.1021	4.1689	44%	56%	50%	50%
Mendota SOI	4.1693	4.6449	63%	36%	64%	36%
Unincorporated West Valley	4.2235	4.1391	67%	33%	68%	32%
EAST VALLEY						
Clovis SOI	2.8015	3.0138	63%	37%	59%	41%
Fowler SOI	3.0868	3.1274	73%	26%	74%	26%
Fresno SOI	2.8576	3.2135	63%	37%	77%	23%
Kerman SOI	3.3401	3.3879	69%	31%	74%	26%
Kingsburg SOI	2.8829	2.6871	72%	28%	58%	42%
Orange Cove SOI	4.2171	4.3514	80%	20%	80%	20%
Parlier SOI	4.3095	4.3049	74%	26%	76%	25%
Reedley SOI	3.3556	3.3414	68%	32%	69%	31%
San Joaquin SOI	4.3158	4.5256	65%	35%	68%	32%
Sanger SOI	3.5662	3.5516	70%	30%	69%	31%
Selma SOI	3.4488	4.0372	73%	27%	86%	14%
Unincorporated East Valley	3.2440	3.1590	77%	23%	73%	27%
SIERRA FOOTHILLS	2.8639	3.0148	65%	35%	80%	20%
SIERRA NEVADA MOUNTAINS	3.1615	4.3779	74%	26%	83%	17%
SF = Single Family						
MF = Multi-Family						
HH = Household						

TABLE 8.1

SCENARIO A - CURRENT TRENDS
GEOGRAPHIC ALLOCATION OF GROWTH INCREMENT
RESIDENTIAL
1996 - 2020

	<i>Population</i>	<i>SF HH</i>	<i>SF DU</i>	<i>MF HH</i>	<i>MF DU</i>	<i>Gross Acres SF</i>	<i>Gross Acres MF</i>
FRESNO COUNTY TOTAL	648,786	145,757	153,045	51,723	54,309	38,261	6,789
COAST RANGE FOOTHILLS	231	46	48	37	39	12	5
WEST VALLEY TOTAL	35,190	5,320	5,586	2,794	2,934	1,396	367
Coalinga SOI	8,310	1,268	1,332	400	420	333	53
Firebaugh SOI	4,933	873	917	470	494	229	62
Huron SOI	5,283	634	665	634	665	166	83
Mendota SOI	7,272	1,002	1,052	564	592	263	74
Unincorporated West Valley	9,392	1,543	1,620	726	762	405	95
EAST VALLEY TOTAL	598,299	136,786	143,626	48,035	50,437	35,906	6,305
Clovis SOI	58,380	11,429	12,000	7,942	8,339	3,000	1,042
Fowler SOI	4,507	1,066	1,120	375	393	280	49
Fresno SOI	375,262	89,918	94,414	26,859	28,202	23,603	3,525
Kerman SOI	6,751	1,475	1,548	518	544	387	68
Kingsburg SOI	7,622	1,645	1,727	1,191	1,251	432	156
Orange Cove SOI	6,058	1,114	1,169	278	292	292	37
Parlier SOI	8,401	1,483	1,557	468	492	389	61
Reedley SOI	17,640	3,643	3,825	1,637	1,718	956	215
San Joaquin SOI	3,134	471	494	222	233	124	29
Sanger SOI	18,187	3,533	3,710	1,587	1,667	928	208
Selma SOI	18,431	3,926	4,123	639	671	1,031	84
Unincorporated East Valley	73,927	17,083	17,938	6,319	6,634	4,484	829
SIERRA FOOTHILLS	9,885	2,623	2,754	656	689	689	86
SIERRA NEVADA MOUNTAINS	5,181	982	1,031	201	211	258	26
<i>SF = Single Family</i> <i>MF = Multi-Family</i> <i>HH = Household</i> <i>DU = Dwelling Unit</i>							

TABLE 8.2

**SCENARIO B/C - SHIFTS IN AGRICULTURAL
PRODUCTION/VALUE-ADDED AGRICULTURE
GEOGRAPHIC ALLOCATION OF GROWTH INCREMENT
RESIDENTIAL
1996 - 2020**

	<i>Population</i>	<i>SF HH</i>	<i>SF DU</i>	<i>MF HH</i>	<i>MF DU</i>	<i>Gross Acres SF</i>	<i>Gross Acres MF</i>
FRESNO COUNTY TOTAL	681,704	152,590	160,219	56,824	59,665	40,055	7,458
COAST RANGE FOOTHILLS	59	12	12	10	10	3	1
WEST VALLEY TOTAL	52,657	8,290	8,705	4,372	4,591	2,176	574
Coalinga SOI	4,998	763	801	241	253	200	32
Firebaugh SOI	12,557	2,222	2,333	1,197	1,256	583	157
Huron SOI	5,148	617	648	617	648	162	81
Mendota SOI	8,801	1,213	1,273	682	716	318	90
Unincorporated West Valley	21,152	3,475	3,649	1,635	1,717	912	215
EAST VALLEY TOTAL	584,730	132,855	139,498	49,619	52,100	34,875	6,513
Clovis SOI	56,491	11,059	11,612	7,685	8,069	2,903	1,009
Fowler SOI	6,370	1,507	1,583	530	556	396	70
Fresno SOI	238,050	57,040	59,892	17,038	17,890	14,973	2,236
Kerman SOI	6,927	1,513	1,589	532	558	397	70
Kingsburg SOI	16,498	3,561	3,739	2,579	2,708	935	338
Orange Cove SOI	2,154	396	416	99	104	104	13
Parlier SOI	3,661	646	679	204	214	170	27
Reedley SOI	20,670	4,268	4,482	1,918	2,014	1,120	252
San Joaquin SOI	3,148	473	497	223	234	124	29
Sanger SOI	16,306	3,168	3,326	1,423	1,494	832	187
Selma SOI	18,506	3,942	4,139	642	674	1,035	84
Unincorporated East Valley	195,949	45,281	47,545	16,748	17,585	11,886	2,198
SIERRA FOOTHILLS	40,144	10,653	11,185	2,663	2,796	2,796	350
SIERRA NEVADA MOUNTAINS	4,113	780	819	160	168	205	21
<i>SF = Single Family</i> <i>MF = Multi-Family</i> <i>HH = Household</i> <i>DU = Dwelling Unit</i>							

TABLE 8.3

**SCENARIO D - NON-AGRICULTURAL BASIC EMPLOYMENT
GEOGRAPHIC ALLOCATION OF GROWTH INCREMENT
RESIDENTIAL
1996 - 2020**

	<i>Population</i>	<i>SF HH</i>	<i>SF DU</i>	<i>MF HH</i>	<i>MF DU</i>	<i>Gross Acres SF</i>	<i>Gross Acres MF</i>
FRESNO COUNTY TOTAL	709,245	160,136	168,143	59,257	62,219	42,036	7,777
COAST RANGE FOOTHILLS	62	12	13	10	11	3	1
WEST VALLEY TOTAL	34,763	5,400	5,670	2,892	3,037	1,418	380
Coalinga SOI	4,440	678	711	214	225	178	28
Firebaugh SOI	8,112	1,436	1,507	773	812	377	101
Huron SOI	4,386	526	552	526	552	138	69
Mendota SOI	6,318	870	914	490	514	228	64
Unincorporated West Valley	11,508	1,891	1,985	890	934	496	117
EAST VALLEY TOTAL	616,037	139,559	146,537	52,600	55,230	36,634	6,904
Clovis SOI	85,572	16,752	17,590	11,641	12,223	4,397	1,528
Fowler SOI	9,164	2,168	2,277	762	800	569	100
Fresno SOI	285,212	68,341	71,758	20,413	21,434	17,939	2,679
Kerman SOI	6,612	1,444	1,516	507	533	379	67
Kingsburg SOI	10,969	2,368	2,486	1,714	1,800	621	225
Orange Cove SOI	2,059	379	397	95	99	99	12
Parlier SOI	3,327	587	617	185	195	154	24
Reedley SOI	26,804	5,535	5,812	2,487	2,611	1,453	326
San Joaquin SOI	3,165	476	499	224	235	125	29
Sanger SOI	11,475	2,229	2,341	1,002	1,052	585	131
Selma SOI	21,739	4,631	4,862	754	792	1,216	99
Unincorporated East Valley	149,942	34,649	36,382	12,816	13,456	9,095	1,682
SIERRA FOOTHILLS	54,066	14,347	15,064	3,587	3,766	3,766	471
SIERRA NEVADA MOUNTAINS	4,315	818	859	168	176	215	22

SF = Single Family

MF = Multi-Family

HH = Household

DU = Dwelling Unit

TABLE 8.4

SCENARIO E - POPULATION-DRIVEN GROWTH
GEOGRAPHIC ALLOCATION OF GROWTH INCREMENT
RESIDENTIAL
1996 - 2020

	<i>Population</i>	<i>SF HH</i>	<i>SF DU</i>	<i>MF HH</i>	<i>MF DU</i>	<i>Gross Acres SF</i>	<i>Gross Acres MF</i>
FRESNO COUNTY TOTAL	743,668	163,907	172,102	63,182	66,341	43,026	8,293
COAST RANGE FOOTHILLS	204	41	43	33	35	11	4
WEST VALLEY TOTAL	38,732	5,607	5,888	3,413	3,583	1,472	448
Coalinga SOI	2,182	333	350	105	110	87	14
Firebaugh SOI	2,239	396	416	213	224	104	28
Huron SOI	10,307	1,236	1,298	1,236	1,298	324	162
Mendota SOI	11,379	1,568	1,646	882	926	412	116
Unincorporated West Valley	12,624	2,074	2,178	976	1,025	544	128
EAST VALLEY TOTAL	675,347	151,401	158,972	58,129	61,035	39,743	7,629
Clovis SOI	85,524	16,743	17,580	11,635	12,217	4,395	1,527
Fowler SOI	2,670	632	663	222	233	166	29
Fresno SOI	174,378	41,783	43,873	12,481	13,105	10,968	1,638
Kerman SOI	12,115	2,646	2,778	930	976	695	122
Kingsburg SOI	4,697	1,014	1,065	734	771	266	96
Orange Cove SOI	4,933	907	952	227	238	238	30
Parlier SOI	8,101	1,430	1,502	452	474	375	59
Reedley SOI	23,032	4,756	4,994	2,137	2,244	1,248	280
San Joaquin SOI	8,582	1,290	1,354	607	637	339	80
Sanger SOI	13,693	2,660	2,793	1,195	1,255	698	157
Selma SOI	26,511	5,647	5,930	919	965	1,482	121
Unincorporated East Valley	311,112	71,893	75,488	26,591	27,920	18,872	3,490
SIERRA FOOTHILLS	16,977	4,505	4,730	1,126	1,183	1,183	148
SIERRA NEVADA MOUNTAINS	12,409	2,353	2,470	482	506	618	63
<i>SF = Single Family</i> <i>MF = Multi-Family</i> <i>HH = Household</i> <i>DU = Dwelling Unit</i>							

TABLE 9.1

SCENARIO A - CURRENT TRENDS
GEOGRAPHIC ALLOCATION OF GROWTH INCREMENT
NON-RESIDENTIAL (EXCLUDING AGRICULTURAL PRODUCTION)
1996 - 2020

	RETAIL/LOCAL							OFFICE				
	Population	Total Employees	Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage	Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage
FRESNO COUNTY TOTAL	648,786	265,538	71,814	39,497,700	43,447,470	3,990	4,588	57,325	17,197,500	18,917,250	966	1,111
COAST RANGE FOOTHILLS	231	44	26	14,068	15,475	1	2	0	0	0	0	0
WEST VALLEY TOTAL	35,190	18,794	3,895	2,142,344	2,356,579	216	249	714	214,160	235,576	22	25
Coalinga SOI	8,310	2,671	920	505,910	556,501	51	59	382	114,556	126,011	12	13
Firebaugh SOI	4,933	3,078	546	300,342	330,376	30	35	272	81,696	89,866	8	9
Huron SOI	5,283	1,440	585	321,599	353,759	32	37	2	546	600	0	0
Mendota SOI	7,272	2,544	805	442,710	486,981	45	51	22	6,515	7,166	1	1
Unincorporated West Valley	9,392	9,061	1,040	571,783	628,962	58	66	36	10,847	11,932	1	1
EAST VALLEY TOTAL	598,299	242,153	66,226	36,424,095	40,066,505	3,679	4,231	56,602	16,980,665	18,678,731	944	1,085
Clovis SOI	58,380	35,303	6,462	3,554,125	3,909,538	359	413	21,098	6,329,466	6,962,413	320	368
Fowler SOI	4,507	2,951	499	274,367	301,804	28	32	1,216	364,824	401,306	37	42
Fresno SOI	375,262	122,320	41,538	22,845,696	25,130,266	2,308	2,654	29,812	8,943,541	9,837,895	452	519
Kerman SOI	6,751	2,263	747	410,981	452,079	42	48	123	36,907	40,597	4	4
Kingsburg SOI	7,622	4,417	844	464,019	510,421	47	54	782	234,535	257,988	24	27
Orange Cove SOI	6,058	1,299	671	368,778	405,656	37	43	11	3,257	3,583	0	0
Parlier SOI	8,401	1,902	930	511,458	562,603	52	59	0	0	0	0	0
Reedley SOI	17,640	8,428	1,953	1,073,931	1,181,325	108	125	2,554	766,074	842,681	77	89
San Joaquin SOI	3,134	683	347	190,792	209,871	19	22	0	0	0	0	0
Sanger SOI	18,187	6,106	2,013	1,107,216	1,217,938	112	129	394	118,342	130,177	12	14
Selma SOI	18,431	6,650	2,040	1,122,096	1,234,306	113	130	479	143,840	158,224	15	17
Unincorporated East Valley	73,927	49,830	8,183	4,500,635	4,950,698	455	523	133	39,879	43,867	4	5
SIERRA FOOTHILLS	9,885	3,569	1,094	601,793	661,972	61	70	9	2,676	2,943	0	0
SIERRA NEVADA MOUNTAINS	5,181	978	573	315,399	346,939	32	37	0	0	0	0	0

TABLE 9.1 (continued)

	INDUSTRIAL					PUBLIC/INSTITUTIONAL					OTHER	TOTAL
	Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage	Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage	Gross Acres	Gross Acres
FRESNO COUNTY TOTAL	25,539	25,539,000	28,092,900	1,843	2,119	50,718	15,215,400	16,736,940	1,537	1,767	6,488	16,073
COAST RANGE FOOTHILLS	0	0	0	0	0	18	5,419	5,961	1	1	2	5
WEST VALLEY TOTAL	2,297	2,297,210	2,526,931	166	191	2,751	825,279	907,807	83	96	352	912
Coalinga SOI	286	285,643	314,207	21	24	650	194,888	214,377	20	23	83	202
Firebaugh SOI	1,400	1,400,102	1,540,112	101	116	386	115,698	127,268	12	13	49	223
Huron SOI	97	96,895	106,584	7	8	413	123,887	136,276	13	14	53	113
Mendota SOI	384	383,504	421,855	28	32	568	170,542	187,596	17	20	73	177
Unincorporated West Valley	131	131,066	144,173	9	11	734	220,264	242,290	22	26	94	198
EAST VALLEY TOTAL	23,176	23,176,257	25,493,882	1,672	1,923	46,771	14,031,378	15,434,516	1,417	1,630	5,983	14,852
Clovis SOI	2,245	2,244,702	2,469,172	162	186	4,564	1,369,129	1,506,042	138	159	584	1,710
Fowler SOI	290	290,225	319,248	21	24	352	105,692	116,262	11	12	45	156
Fresno SOI	14,072	14,071,822	15,479,004	1,015	1,168	29,336	8,800,675	9,680,742	889	1,022	3,753	9,116
Kerman SOI	188	188,126	206,938	14	16	528	158,319	174,151	16	18	68	154
Kingsburg SOI	1,380	1,379,734	1,517,707	100	114	596	178,750	196,626	18	21	76	293
Orange Cove SOI	24	23,510	25,861	2	2	474	142,062	156,268	14	17	61	122
Parlier SOI	10	10,139	11,153	1	1	657	197,025	216,727	20	23	84	167
Reedley SOI	865	865,041	951,545	62	72	1,379	413,702	455,073	42	48	176	510
San Joaquin SOI	5	4,734	5,208	0	0	245	73,497	80,847	7	9	31	62
Sanger SOI	959	959,025	1,054,927	69	80	1,422	426,525	469,177	43	50	182	453
Selma SOI	1,560	1,560,381	1,716,419	113	129	1,441	432,257	475,482	44	50	184	511
Unincorporated East Valley	1,579	1,578,819	1,736,701	114	131	5,779	1,733,745	1,907,120	175	201	739	1,599
SIERRA FOOTHILLS	66	65,533	72,086	5	5	773	231,824	255,007	23	27	99	201
SIERRA NEVADA MOUNTAINS	0	0	0	0	0	405	121,499	133,649	12	14	52	103

TABLE 9.2

**SCENARIO B/C - SHIFTS IN AGRICULTURAL PRODUCTION/VALUE-ADDED AGRICULTURE
GEOGRAPHIC ALLOCATION OF GROWTH INCREMENT
NON-RESIDENTIAL (EXCLUDING AGRICULTURAL PRODUCTION)
1996 - 2020**

			RETAIL/LOCAL					OFFICE				
	Population	Total Employees	Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage	Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage
FRESNO COUNTY TOTAL	681,704	340,917	47,334	26,033,700	28,637,070	2,630	3,024	64,176	19,252,800	21,178,080	1,081	1,243
COAST RANGE FOOTHILLS	59	11	4	2,271	2,498	0	0	0	0	0	0	0
WEST VALLEY TOTAL	52,657	30,027	3,656	2,010,929	2,212,022	203	234	799	239,754	263,730	24	28
Coalinga SOI	4,998	2,869	347	190,881	209,969	19	22	427	128,246	141,071	13	15
Firebaugh SOI	12,557	8,127	872	479,546	527,501	48	56	305	91,460	100,606	9	11
Huron SOI	5,148	1,736	357	196,595	216,254	20	23	2	611	672	0	0
Mendota SOI	8,801	4,033	611	336,114	369,725	34	39	24	7,293	8,023	1	1
Unincorporated West Valley	21,152	13,261	1,469	807,793	888,572	82	94	40	12,144	13,358	1	1
EAST VALLEY TOTAL	584,730	300,493	40,601	22,330,353	24,563,388	2,256	2,594	63,367	19,010,050	20,911,055	1,057	1,215
Clovis SOI	56,491	42,424	3,922	2,157,336	2,373,069	218	251	23,620	7,085,911	7,794,502	358	412
Fowler SOI	6,370	3,767	442	243,272	267,599	25	28	1,361	408,424	449,267	41	47
Fresno SOI	238,050	129,834	16,529	9,090,928	10,000,021	918	1,056	33,375	10,012,397	11,013,637	506	582
Kerman SOI	6,927	2,647	481	264,530	290,983	27	31	138	41,317	45,449	4	5
Kingsburg SOI	16,498	10,340	1,146	630,052	693,057	64	73	875	262,564	288,821	27	30
Orange Cove SOI	2,154	618	150	82,267	90,494	8	10	12	3,647	4,011	0	0
Parlier SOI	3,661	1,070	254	139,829	153,812	14	16	0	0	0	0	0
Reedley SOI	20,670	10,221	1,435	789,374	868,311	80	92	2,859	857,628	943,391	87	100
San Joaquin SOI	3,148	687	219	120,208	132,228	12	14	0	0	0	0	0
Sanger SOI	16,306	8,723	1,132	622,720	684,992	63	72	442	132,486	145,734	13	15
Selma SOI	18,506	8,271	1,285	706,714	777,385	71	82	537	161,030	177,133	16	19
Unincorporated East Valley	195,949	81,892	13,606	7,483,124	8,231,437	756	869	149	44,645	49,110	5	5
SIERRA FOOTHILLS	40,144	9,643	2,787	1,533,071	1,686,378	155	178	10	2,996	3,295	0	0
SIERRA NEVADA MOUNTAINS	4,113	743	286	157,077	172,785	16	18	0	0	0	0	0

TABLE 9.2 (continued)

	INDUSTRIAL					PUBLIC/INSTITUTIONAL					OTHER	TOTAL
	Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage	Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage	Gross Acres	Gross Acres
FRESNO COUNTY TOTAL	81,264	81,264,000	89,390,400	5,863	6,743	75,874	22,762,200	25,038,420	2,299	2,644	6,817	20,471
COAST RANGE FOOTHILLS	0	0	0	0	0	7	1,985	2,184	0	0	1	1
WEST VALLEY TOTAL	8,732	8,732,015	9,605,217	630	725	5,861	1,758,227	1,934,050	178	204	527	1,717
Coalinga SOI	1,017	1,016,869	1,118,556	73	84	556	166,894	183,583	17	19	50	191
Firebaugh SOI	4,983	4,983,273	5,481,600	360	413	1,398	419,285	461,213	42	49	126	654
Huron SOI	391	391,418	430,560	28	32	573	171,890	189,079	17	20	51	127
Mendota SOI	1,498	1,498,344	1,648,178	108	124	980	293,877	323,264	30	34	88	286
Unincorporated West Valley	842	842,112	926,323	61	70	2,354	706,283	776,911	71	82	212	459
EAST VALLEY TOTAL	72,111	72,110,929	79,322,022	5,203	5,983	65,081	19,524,231	21,476,654	1,972	2,268	5,847	17,908
Clovis SOI	7,472	7,471,707	8,218,878	539	620	6,287	1,886,236	2,074,860	191	219	565	2,066
Fowler SOI	541	541,339	595,473	39	45	709	212,701	233,971	21	25	64	209
Fresno SOI	44,347	44,346,636	48,781,300	3,200	3,680	26,495	7,948,525	8,743,378	803	923	2,380	8,621
Kerman SOI	445	444,822	489,304	32	37	771	231,288	254,417	23	27	69	169
Kingsburg SOI	5,502	5,501,778	6,051,956	397	456	1,836	550,877	605,965	56	64	165	789
Orange Cove SOI	72	71,782	78,960	5	6	240	71,929	79,122	7	8	22	46
Parlier SOI	41	40,957	45,052	3	3	408	122,258	134,484	12	14	37	70
Reedley SOI	1,610	1,610,011	1,771,012	116	134	2,301	690,178	759,196	70	80	207	612
San Joaquin SOI	14	13,768	15,145	1	1	350	105,102	115,612	11	12	31	59
Sanger SOI	3,751	3,750,908	4,125,998	271	311	1,815	544,467	598,913	55	63	163	625
Selma SOI	3,033	3,032,596	3,335,856	219	252	2,060	617,905	679,696	62	72	185	609
Unincorporated East Valley	5,285	5,284,625	5,813,088	381	438	21,809	6,542,765	7,197,041	661	760	1,959	4,032
SIERRA FOOTHILLS	421	421,056	463,162	30	35	4,468	1,340,419	1,474,461	135	156	401	771
SIERRA NEVADA MOUNTAINS	0	0	0	0	0	458	137,338	151,072	14	16	41	75

TABLE 9.3

**SCENARIO D - NON-AGRICULTURAL BASIC EMPLOYMENT
GEOGRAPHIC ALLOCATION OF GROWTH INCREMENT
NON-RESIDENTIAL (EXCLUDING AGRICULTURAL PRODUCTION)
1996 - 2020**

			Retail/Local	RETAIL/LOCAL				OFFICE				
	Population	Total Employees	Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage	Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage
FRESNO COUNTY TOTAL	709,245	354,482	52,062	28,634,100	31,497,510	2,892	3,326	132,173	39,651,900	43,617,090	2,227	2,561
COAST RANGE FOOTHILLS	62	11	5	2,518	2,770	0	0	0	0	0	0	0
WEST VALLEY TOTAL	34,763	17,579	2,552	1,403,488	1,543,837	142	163	1,646	493,783	543,161	50	57
Coalinga SOI	4,440	2,551	326	179,251	197,176	18	21	880	264,128	290,541	27	31
Firebaugh SOI	8,112	5,490	595	327,522	360,274	33	38	628	188,365	207,202	19	22
Huron SOI	4,386	1,174	322	177,071	194,778	18	21	4	1,258	1,384	0	0
Mendota SOI	6,318	2,388	464	255,055	280,560	26	30	50	15,021	16,523	2	2
Unincorporated West Valley	11,508	5,977	845	464,590	511,049	47	54	83	25,010	27,511	3	3
EAST VALLEY TOTAL	616,037	325,284	45,220	24,871,064	27,358,171	2,512	2,889	130,506	39,151,947	43,067,142	2,176	2,503
Clovis SOI	85,572	70,052	6,281	3,454,749	3,800,224	349	401	48,646	14,593,712	16,053,084	737	848
Fowler SOI	9,164	5,657	673	369,961	406,957	37	43	2,804	841,166	925,283	85	98
Fresno SOI	285,212	160,646	20,936	11,514,744	12,666,219	1,163	1,338	68,736	20,620,926	22,683,019	1,041	1,198
Kerman SOI	6,612	2,359	485	266,925	293,618	27	31	284	85,095	93,604	9	10
Kingsburg SOI	10,969	7,037	805	442,830	487,113	45	51	1,803	540,762	594,838	55	63
Orange Cove SOI	2,059	520	151	83,127	91,440	8	10	25	7,511	8,262	1	1
Parlier SOI	3,327	782	244	134,312	147,743	14	16	0	0	0	0	0
Reedley SOI	26,804	14,256	1,968	1,082,142	1,190,356	109	126	5,888	1,766,319	1,942,951	178	205
San Joaquin SOI	3,165	634	232	127,768	140,544	13	15	0	0	0	0	0
Sanger SOI	11,475	5,663	842	463,280	509,608	47	54	910	272,859	300,145	28	32
Selma SOI	21,739	10,323	1,596	877,667	965,434	89	102	1,105	331,648	364,813	33	39
Unincorporated East Valley	149,942	47,355	11,006	6,053,559	6,658,915	611	703	306	91,948	101,143	9	11
SIERRA FOOTHILLS	54,066	10,819	3,969	2,182,806	2,401,087	220	254	21	6,170	6,787	1	1
SIERRA NEVADA MOUNTAINS	4,315	788	317	174,223	191,645	18	20	0	0	0	0	0

TABLE 9.3 (continued)

	INDUSTRIAL					PUBLIC/INSTITUTIONAL					OTHER	TOTAL
	Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage	Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage	Gross Acres	Gross Acres
FRESNO COUNTY TOTAL	62,456	62,456,000	68,701,600	4,506	5,182	77,491	23,247,300	25,572,030	2,348	2,700	7,092	20,862
COAST RANGE FOOTHILLS	0	0	0	0	0	7	2,045	2,249	0	0	1	1
WEST VALLEY TOTAL	4,980	4,980,356	5,478,392	359	413	3,798	1,139,457	1,253,402	115	132	348	1,114
Coalinga SOI	641	640,736	704,810	46	53	485	145,529	160,082	15	17	44	166
Firebaugh SOI	3,141	3,141,084	3,455,193	227	261	886	265,907	292,497	27	31	81	433
Huron SOI	196	195,646	215,211	14	16	479	143,760	158,136	15	17	44	98
Mendota SOI	798	798,109	877,920	58	66	690	207,073	227,780	21	24	63	185
Unincorporated West Valley	205	204,781	225,259	15	17	1,257	377,189	414,907	38	44	115	233
EAST VALLEY TOTAL	57,373	57,373,253	63,110,578	4,139	4,760	67,307	20,192,187	22,211,405	2,040	2,346	6,160	18,658
Clovis SOI	5,305	5,304,538	5,834,992	383	440	9,349	2,804,823	3,085,306	283	326	856	2,871
Fowler SOI	881	880,663	968,729	64	73	1,001	300,362	330,398	30	35	92	340
Fresno SOI	36,001	36,001,400	39,601,540	2,598	2,987	31,162	9,348,529	10,283,382	944	1,086	2,852	9,460
Kerman SOI	527	526,998	579,698	38	44	722	216,710	238,381	22	25	66	176
Kingsburg SOI	2,819	2,819,442	3,101,386	203	234	1,198	359,523	395,475	36	42	110	500
Orange Cove SOI	58	58,300	64,130	4	5	225	67,489	74,238	7	8	21	44
Parlier SOI	20	20,472	22,519	1	2	363	109,044	119,949	11	13	33	63
Reedley SOI	2,627	2,626,522	2,889,174	190	218	2,929	878,564	966,420	89	102	268	919
San Joaquin SOI	12	12,060	13,266	1	1	346	103,731	114,104	10	12	32	60
Sanger SOI	1,994	1,993,944	2,193,339	144	165	1,254	376,125	413,738	38	44	115	409
Selma SOI	4,678	4,677,824	5,145,606	338	388	2,375	712,555	783,811	72	83	217	829
Unincorporated East Valley	2,451	2,451,091	2,696,200	177	203	16,382	4,914,731	5,406,204	496	571	1,499	2,988
SIERRA FOOTHILLS	102	102,390	112,630	7	8	5,907	1,772,165	1,949,381	179	206	541	1,009
SIERRA NEVADA MOUNTAINS	0	0	0	0	0	471	141,447	155,592	14	16	43	80

TABLE 9.4
SCENARIO E - POPULATION-DRIVEN GROWTH
GEOGRAPHIC ALLOCATION OF GROWTH INCREMENT
NON-RESIDENTIAL (EXCLUDING AGRICULTURAL PRODUCTION)
1996 - 2020

	Population	Total Employees	RETAIL/LOCAL					OFFICE				
			Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage	Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage
FRESNO COUNTY TOTAL	743,668	339,065	77,920	42,856,000	47,141,600	4,329	4,978	74,934	22,480,200	24,728,220	1,262	1,452
COAST RANGE FOOTHILLS	204	36	18	9,647	10,612	1	1	0	0	0	0	0
WEST VALLEY TOTAL	38,732	21,027	4,002	2,201,270	2,421,397	222	256	933	279,945	307,939	28	33
Coalinga SOI	2,182	2,189	326	179,156	197,072	18	21	499	149,745	164,719	15	17
Firebaugh SOI	2,239	4,894	301	165,366	181,903	17	19	356	106,792	117,471	11	12
Huron SOI	10,307	2,619	1,045	574,694	632,164	58	67	2	713	785	0	0
Mendota SOI	11,379	3,910	1,164	640,263	704,290	65	74	28	8,516	9,368	1	1
Unincorporated West Valley	12,624	7,416	1,167	641,789	705,968	65	75	47	14,179	15,597	1	2
EAST VALLEY TOTAL	675,347	310,990	71,072	39,089,854	42,998,840	3,948	4,541	73,989	22,196,757	24,416,433	1,234	1,419
Clovis SOI	85,524	48,253	6,993	3,846,213	4,230,834	389	447	27,579	8,273,742	9,101,116	418	481
Fowler SOI	2,670	3,466	368	202,211	222,432	20	23	1,590	476,890	524,579	48	55
Fresno SOI	174,378	125,386	21,871	12,028,796	13,231,676	1,215	1,397	38,969	11,690,803	12,859,883	590	679
Kerman SOI	12,115	3,616	1,237	680,270	748,296	69	79	161	48,244	53,068	5	6
Kingsburg SOI	4,697	6,270	553	303,971	334,368	31	35	1,022	306,579	337,237	31	36
Orange Cove SOI	4,933	1,181	502	276,065	303,671	28	32	14	4,258	4,684	0	0
Parlier SOI	8,101	1,946	840	461,761	507,937	47	54	0	0	0	0	0
Reedley SOI	23,032	11,470	2,367	1,301,783	1,431,962	131	151	3,338	1,001,395	1,101,534	101	116
San Joaquin SOI	8,582	1,828	859	472,608	519,869	48	55	0	0	0	0	0
Sanger SOI	13,693	6,786	1,425	783,610	861,971	79	91	516	154,695	170,164	16	18
Selma SOI	26,511	10,871	2,718	1,494,783	1,644,262	151	174	627	188,024	206,827	19	22
Unincorporated East Valley	311,112	89,917	31,341	17,237,783	18,961,561	1,741	2,002	174	52,129	57,342	5	6
SIERRA FOOTHILLS	16,977	4,528	1,614	887,822	976,605	90	103	12	3,498	3,848	0	0
SIERRA NEVADA MOUNTAINS	12,409	2,483	1,213	667,407	734,147	67	78	0	0	0	0	0

TABLE 9.4 (continued)

	INDUSTRIAL					PUBLIC/INSTITUTIONAL					OTHER	TOTAL
	Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage	Employees	Gross Floor Area	Total Sq. Ft. (inc. vac.)	Net Acreage	Gross Acreage	Gross Acres	Gross Acres
FRESNO COUNTY TOTAL	64,922	64,922,000	71,414,200	4,684	5,387	81,539	24,461,700	26,907,870	2,471	2,842	7,437	22,095
COAST RANGE FOOTHILLS	0	0	0	0	0	18	5,507	6,057	1	1	2	4
WEST VALLEY TOTAL	5,865	5,864,754	6,451,229	423	487	4,188	1,256,459	1,382,105	127	146	387	1,308
Coalinga SOI	736	736,389	810,028	53	61	341	102,260	112,486	10	12	22	133
Firebaugh SOI	3,609	3,609,436	3,970,380	260	299	315	94,389	103,828	10	11	22	364
Huron SOI	251	251,387	276,526	18	21	1,093	328,029	360,832	33	38	103	229
Mendota SOI	993	993,235	1,092,558	72	82	1,218	365,455	402,000	37	42	114	314
Unincorporated West Valley	274	274,307	301,738	20	23	1,221	366,326	402,958	37	43	126	268
EAST VALLEY TOTAL	58,920	58,920,093	64,812,102	4,251	4,889	74,373	22,312,028	24,543,231	2,254	2,592	6,753	20,194
Clovis SOI	5,745	5,745,182	6,319,700	415	477	7,318	2,195,373	2,414,910	222	255	855	2,514
Fowler SOI	731	731,357	804,492	53	61	385	115,420	126,962	12	13	27	180
Fresno SOI	36,660	36,660,490	40,326,539	2,645	3,042	22,886	6,865,895	7,552,485	694	798	1,744	7,659
Kerman SOI	477	477,287	525,016	34	40	1,294	388,290	427,119	39	45	121	290
Kingsburg SOI	3,577	3,577,168	3,934,885	258	297	578	173,503	190,853	18	20	47	435
Orange Cove SOI	60	60,202	66,222	4	5	525	157,575	173,332	16	18	49	105
Parlier SOI	26	26,304	28,935	2	2	879	263,568	289,925	27	31	81	167
Reedley SOI	2,180	2,179,751	2,397,727	157	181	2,477	743,043	817,347	75	86	230	765
San Joaquin SOI	12	12,099	13,309	1	1	899	269,759	296,735	27	31	86	173
Sanger SOI	2,484	2,483,906	2,732,297	179	206	1,491	447,275	492,003	45	52	137	504
Selma SOI	3,936	3,936,287	4,329,916	284	327	2,844	853,205	938,525	86	99	265	886
Unincorporated East Valley	3,030	3,030,059	3,333,065	219	251	32,797	9,839,123	10,823,036	994	1,143	3,111	6,514
SIERRA FOOTHILLS	137	137,154	150,869	10	11	1,689	506,759	557,434	51	59	170	344
SIERRA NEVADA MOUNTAINS	0	0	0	0	0	1,270	380,948	419,043	38	44	124	246

TABLE 10.1

SCENARIO A - CURRENT TRENDS
TOTAL GROSS ACREAGE
1996-2020

	RESIDENTIAL		NON-RESIDENTIAL					
	SF	MF	Retail/ Local	Office/ Professional	Industrial	Public/ Institutional	Other	Total Non- Residential
FRESNO COUNTY TOTAL	38,261	6,789	4,588	1,111	2,119	1,767	6,488	16,073
COAST RANGE FOOTHILLS	12	5	2	0	0	1	2	5
WEST VALLEY TOTAL	1,396	367	249	25	191	96	352	912
Coalinga SOI	333	53	59	13	24	23	83	202
Firebaugh SOI	229	62	35	9	116	13	49	223
Huron SOI	166	83	37	0	8	14	53	113
Mendota SOI	263	74	51	1	32	20	73	177
Unincorporated West Valley	405	95	66	1	11	26	94	198
EAST VALLEY TOTAL	35,906	6,305	4,231	1,085	1,923	1,630	5,983	14,852
Clovis SOI	3,000	1,042	413	368	186	159	584	1,710
Fowler SOI	280	49	32	42	24	12	45	156
Fresno SOI	23,603	3,525	2,654	519	1,168	1,022	3,753	9,116
Kerman SOI	387	68	48	4	16	18	68	154
Kingsburg SOI	432	156	54	27	114	21	76	293
Orange Cove SOI	292	37	43	0	2	17	61	122
Parlier SOI	389	61	59	0	1	23	84	167
Reedley SOI	956	215	125	89	72	48	176	510
San Joaquin SOI	124	29	22	0	0	9	31	62
Sanger SOI	928	208	129	14	80	50	182	453
Selma SOI	1,031	84	130	17	129	50	184	511
Unincorporated East Valley	4,484	829	523	5	131	201	739	1,599
SIERRA FOOTHILLS	689	86	70	0	5	27	99	201
SIERRA NEVADA MOUNTAINS	258	26	37	0	0	14	52	103

TABLE 10.2

**SCENARIO B/C - SHIFTS IN AGRICULTURAL PRODUCTION/VALUE-ADDED AGRICULTURE
TOTAL GROSS ACREAGE
1996-2020**

	RESIDENTIAL		NON-RESIDENTIAL					
	SF	MF	Retail/ Local	Office/ Professional	Industrial	Public/ Institutional	Other	Total Non- Residential
FRESNO COUNTY TOTAL	40,055	7,458	3,024	1,243	6,743	2,644	6,817	20,471
COAST RANGE FOOTHILLS	3	1	0	0	0	0	1	1
WEST VALLEY TOTAL	2,176	574	234	28	725	204	527	1,717
Coalinga SOI	200	32	22	15	84	19	50	191
Firebaugh SOI	583	157	56	11	413	49	126	654
Huron SOI	162	81	23	0	32	20	51	127
Mendota SOI	318	90	39	1	124	34	88	286
Unincorporated West Valley	912	215	94	1	70	82	212	459
EAST VALLEY TOTAL	34,875	6,513	2,594	1,215	5,983	2,268	5,847	17,908
Clovis SOI	2,903	1,009	251	412	620	219	565	2,066
Fowler SOI	396	70	28	47	45	25	64	209
Fresno SOI	14,973	2,236	1,056	582	3,680	923	2,380	8,621
Kerman SOI	397	70	31	5	37	27	69	169
Kingsburg SOI	935	338	73	30	456	64	165	789
Orange Cove SOI	104	13	10	0	6	8	22	46
Parlier SOI	170	27	16	0	3	14	37	70
Reedley SOI	1,120	252	92	100	134	80	207	612
San Joaquin SOI	124	29	14	0	1	12	31	59
Sanger SOI	832	187	72	15	311	63	163	625
Selma SOI	1,035	84	82	19	252	72	185	609
Unincorporated East Valley	11,886	2,198	869	5	438	760	1,959	4,032
SIERRA FOOTHILLS	2,796	350	178	0	35	156	401	771
SIERRA NEVADA MOUNTAINS	205	21	18	0	0	16	41	75

TABLE 10.3

**SCENARIO D - NON-AGRICULTURAL BASIC EMPLOYMENT
TOTAL GROSS ACREAGE
1996-2020**

	RESIDENTIAL		NON-RESIDENTIAL					
	SF	MF	Retail/ Local	Office/ Professional	Industrial	Public/ Institutional	Other	Total Non- Residential
FRESNO COUNTY TOTAL	42,036	7,777	3,326	2,561	5,182	2,700	7,092	20,862
COAST RANGE FOOTHILLS	3	1	0	0	0	0	1	1
WEST VALLEY TOTAL	1,418	380	163	57	413	132	348	1,114
Coalinga SOI	178	28	21	31	53	17	44	166
Firebaugh SOI	377	101	38	22	261	31	81	433
Huron SOI	138	69	21	0	16	17	44	98
Mendota SOI	228	64	30	2	66	24	63	185
Unincorporated West Valley	496	117	54	3	17	44	115	233
EAST VALLEY TOTAL	36,634	6,904	2,889	2,503	4,760	2,346	6,160	18,658
Clovis SOI	4,397	1,528	401	848	440	326	856	2,871
Fowler SOI	569	100	43	98	73	35	92	340
Fresno SOI	17,939	2,679	1,338	1,198	2,987	1,086	2,852	9,460
Kerman SOI	379	67	31	10	44	25	66	176
Kingsburg SOI	621	225	51	63	234	42	110	500
Orange Cove SOI	99	12	10	1	5	8	21	44
Parlier SOI	154	24	16	0	2	13	33	63
Reedley SOI	1,453	326	126	205	218	102	268	919
San Joaquin SOI	125	29	15	0	1	12	32	60
Sanger SOI	585	131	54	32	165	44	115	409
Selma SOI	1,216	99	102	39	388	83	217	829
Unincorporated East Valley	9,095	1,682	703	11	203	571	1,499	2,988
SIERRA FOOTHILLS	3,766	471	254	1	8	206	541	1,009
SIERRA NEVADA MOUNTAINS	215	22	20	0	0	16	43	80

TABLE 10.4

**SCENARIO E - POPULATION-DRIVEN GROWTH
TOTAL GROSS ACREAGE
1996 - 2020**

	RESIDENTIAL		NON-RESIDENTIAL					
	SF Acres	MF Acres	Retail/ Local	Office/ Professional	Industrial	Public/ Institutional	Other	Total Non- Residential
FRESNO COUNTY TOTAL	43,026	8,293	4,978	1,452	5,387	2,842	7,437	22,095
COAST RANGE FOOTHILLS	11	4	1	0	0	1	2	4
WEST VALLEY TOTAL	1,472	448	256	33	487	146	387	1,308
Coalinga SOI	87	14	21	17	61	12	22	133
Firebaugh SOI	104	28	19	12	299	11	22	364
Huron SOI	324	162	67	0	21	38	103	229
Mendota SOI	412	116	74	1	82	42	114	314
Unincorporated West Valley	544	128	75	2	23	43	126	268
EAST VALLEY TOTAL	39,743	7,629	4,541	1,419	4,889	2,592	6,753	20,194
Clovis SOI	4,395	1,527	447	481	477	255	855	2,514
Fowler SOI	166	29	23	55	61	13	27	180
Fresno SOI	10,968	1,638	1,397	679	3,042	798	1,744	7,659
Kerman SOI	695	122	79	6	40	45	121	290
Kingsburg SOI	266	96	35	36	297	20	47	435
Orange Cove SOI	238	30	32	0	5	18	49	105
Parlier SOI	375	59	54	0	2	31	81	167
Reedley SOI	1,248	280	151	116	181	86	230	765
San Joaquin SOI	339	80	55	0	1	31	86	173
Sanger SOI	698	157	91	18	206	52	137	504
Selma SOI	1,482	121	174	22	327	99	265	886
Unincorporated East Valley	18,872	3,490	2,002	6	251	1,143	3,111	6,514
SIERRA FOOTHILLS	1,183	148	103	0	11	59	170	344
SIERRA NEVADA MOUNTAINS	618	63	78	0	0	44	124	246

TECHNICAL APPENDIX

ECONOMIC AND GROWTH SCENARIOS AND THEIR IMPLICATIONS

1. LAND USE

KEY QUESTIONS

- Is there currently sufficient land available and holding capacity planned by the County and its 15 cities to accommodate the development projected for 2020?
- Which jurisdictions have a projected shortfall of land or capacity and, therefore, would need to expand their general plans, their spheres of influence, or zoning capacity?

BACKGROUND

Under the requirements of state law, Fresno County and all 15 cities in the county have prepared and adopted general plans. The general plans must be comprehensive and long term in perspective. Typically, a general plan looks 15 to 20 years into the future when it is prepared, but by the time it is next updated, perhaps five to ten years later, this time horizon has shrunk.

General plans explicitly or implicitly establish a population holding capacity reflecting theoretical buildout of all residential lands designated in the plan. Similarly, general plans explicitly or implicitly set a holding capacity for commercial, industrial, and other non-residential uses. This holding capacity is stated in terms of square feet of building floor area or in terms of acreage. For cities, these holding capacities reflect development of their general plan "planning areas" which include both incorporated and unincorporated territory.

In part based on these general plans, the Local Agency Formation Commission (LAFCO), required in each county by state law, adopts a sphere of influence for each city. This sphere is a projected long-range service area for the city. For most cities in Fresno County, the sphere of influence roughly coincides with the city's planning area. In several cases, such as Clovis, the city-determined planning area and the LAFCO-adopted sphere of influence are significantly different.

Tables 1, 2, and 3 show the holding capacities of the 15 city general plans and the holding capacity of County zoning for the unincorporated area outside city spheres of influence (County zoning data is used here instead of general plan data because general plan data is not available in the County's GIS system).

TABLE 1 SUMMARY OF POPULATION AND LAND USE CAPACITY Fresno County 1996					
Source of Data	Total Acreage Designated by Generalized Land Use Category			1996 Population	Population Holding Capacity
	Residential	Commercial	Industrial		
City General Plans ¹	99,782	10,504	18,382	646,033 ³	1,249,300
Unincorporated Acres Zoned ²	47,392	1,363	4,175	115,799 ⁴	430,644
TOTAL	147,174	11,867	22,557	761,832	1,679,944
¹Total acres designated for residential, commercial, and industrial development by city general plans. ²Total acres zoned for residential, commercial, and industrial development in the unincorporated county exclusive of city spheres of influence. ³Total population within city spheres of influence. ⁴Unincorporated population outside city spheres of influence. Sources: CMCA; City General Plans; County GIS System					

TABLE 2 POPULATION HOLDING CAPACITY OF FRESNO COUNTY ZONING FOR UNINCORPORATED AREAS OUTSIDE CITY SPHERES OF INFLUENCE 1996			
Planning Area	1996 Population	Population Holding Capacity	Remaining Population to Buildout
Rural/Farming Population	107,027	272,853 ²	165,826
Community Plan Areas	8,772	18,618 ³	9,846
Specific Plan Areas*	0 ¹	139,173 ⁴	139,173
TOTAL	115,799	430,644	314,845
¹No data are available regarding the (1996) population within adopted Specific Plan areas. However, according to County staff, little or no development has occurred to date. ²Population holding capacity estimate based on County residential zoning excluding unincorporated areas within city spheres of influence and unincorporated areas covered by County-adopted community plans or specific plans. ³Population holding capacity estimate based on County-adopted community plan, not zoning. ⁴Population holding capacity estimate based on County-adopted specific plans. Source: CMCA; Fresno County General Plan, Community Plans, and Specific Plans			

TABLE 3 POPULATION HOLDING CAPACITIES OF CITY GENERAL PLANS 1996				
<i>City</i>	<i>1996 Population</i>	<i>Population Holding Capacity</i>	<i>Remaining Population to Buildout</i>	<i>Timeframe of Plan (Year)</i>
Coalinga	9,758	16,000	6,242	2015
Firebaugh	5,793	6,700	907	2011
Huron	6,203	5,530	(673)	2000
Mendota	8,539	12,000	3,461	2010
Clovis	68,552	176,680	108,128	2013
Fowler	5,292	3,160	(2,132)	1995
Fresno	440,648	880,000	439,352	2020
Kerman	7,927	15,000	7,073	2013
Kingsburg	8,950	13,800	4,850	2012
Orange Cove	7,113	7,000	(113)	1997
Parlier	9,865	14,000	4,135	2005
Reedley	20,714	35,000	14,286	2012
San Joaquin	3,680	7,000	3,320	2014
Sanger	21,356	19,800	(1,556)	2000
Selma	21,643	37,630	15,987	2015
TOTAL	646,033	1,249,300	603,267	
*Current population within city spheres of influence. Source: CMCA; City General Plans				

COMPARISON OF SCENARIOS

Within the constraints of available data, there are two ways the adequacy of remaining capacity can be assessed. The first is to compare the amount of new development projected for each jurisdiction under each economic and growth scenario with the remaining holding capacity of the jurisdiction's general plan. This comparison can be made based on population holding capacity.

The second method of assessing remaining capacity is to compare the total land demand for each jurisdiction under each scenario with the amount of unincorporated land remaining within the sphere of influence of the jurisdiction. This is a relatively crude indicator since: 1) it can only be applied to cities, not to unincorporated county areas; 2) it does not account for infill of vacant lands and intensification of underutilized land within existing city limits; 3) it glosses over the existing unincorporated population and developed land within the city sphere of influence, treating the unincorporated sphere as if it were vacant or entirely in agricultural use; and 4) LAFCO-adopted

spheres of influence do not correspond directly with city general plan planning areas, although for most cities in Fresno County they are close. Nonetheless, used in combination with the analysis of general plan population holding capacity, it is a useful indicator.

Table 4 shows existing population and projected 2020 population for the four scenario combinations. The detailed comparison of population holding capacities with projected populations shown in Tables 5 through 8 reveals that the existing zoning of the county unincorporated areas and the general plans of the 15 cities have enough combined planned capacity to accommodate all the population growth projected in all four scenarios. Of course, capacity issues differ dramatically by jurisdiction and geographic area depending on the scenario.

Scenario A

As Table 5 shows, the year 2020 population of the entire county would be about 84 percent of what can be accommodated by buildout of the adopted general plans for the cities and zoning for the unincorporated areas. This suggests that collectively, sufficient land is currently designated for development to accommodate the population that would be expected through a continuation of current development trends.

The overall population growth for the county anticipated by Scenario A can be accommodated by existing plans and zoning countywide. In some cases, however, the population growth beyond the population capacity of the city general plan is substantial. This is the case for the cities of Fowler (310 percent of capacity), Sanger (200 percent), and Huron (208 percent). Fresno and Clovis, on the other hand, are projected to be at 93 percent and 72 percent, respectively, of their general plan population capacities in the year 2020.

TABLE 4 COMPARISON OF YEAR 2020 PROJECTED POPULATION FOR SCENARIOS					
<i>Jurisdiction</i>	<i>1996 Population*</i>	<i>Year 2020 Population</i>			
		<i>Scenario A</i>	<i>Scenario B/C</i>	<i>Scenario D</i>	<i>Scenario E</i>
Fresno County	761,832	1,410,618	1,443,536	1,471,077	1,505,500
Coast Range	271	502	331	334	475
West Valley	41,322	76,512	93,979	76,085	80,054
Coalinga	9,758	18,068	14,756	14,198	11,940
Firebaugh	5,793	10,726	18,350	13,905	8,032
Huron	6,203	11,486	11,351	10,589	16,510
Mendota	8,539	15,811	17,340	14,857	19,918
Unincorporated	11,029	20,421	32,181	22,536	23,653
East Valley Total	702,548	1,140,113	1,287,278	1,318,586	1,377,895
Clovis	68,552	126,932	125,043	154,124	154,076
Fowler	5,292	9,799	11,662	14,456	7,962
Fresno	440,648	815,910	678,698	725,860	615,026
Kerman	7,927	14,678	14,854	14,539	20,042
Kingsburg	8,950	16,572	25,448	19,919	13,647
Orange Cove	7,113	13,171	9,267	9,172	12,046
Parlier	9,865	18,266	13,526	13,192	17,966
Reedley	20,714	38,354	41,384	47,518	43,746
San Joaquin	3,680	6,814	6,828	6,845	12,262
Sanger	21,356	39,543	37,662	32,831	35,049
Selma	21,643	40,074	40,149	43,382	48,154
Unincorporated	86,808	160,735	282,757	236,750	397,920
Sierra Foothills	11,607	21,492	51,752	65,674	28,584
Sierra Nevada	6,083	11,264	10,197	10,399	18,492
*For cities, this is the current population within the spheres of influence. Sources: Consultant Team					

TABLE 5

COMPARISON OF SCENARIO A WITH
GENERAL PLAN POPULATION HOLDING CAPACITIES

<i>Jurisdiction</i>	<i>Population At Buildout of General Plan</i>	<i>Scenario A Year 2020 Population</i>	<i>Percent of General Plan Buildout Population</i>	<i>Year 2020 Population Difference with Buildout</i>
Total County	1,679,944	1,410,618	84%	269,326
Unincorporated	430,644	214,414	50%	216,230
Cities	1,249,300	1,196,204	96%	53,096
West Valley Cities	40,230	56,091	139%	(15,861)
Coalinga	16,000	18,068	113%	(2,068)
Firebaugh	6,700	10,726	160%	(4,026)
Huron	5,530	11,486	208%	(5,956)
Mendota	12,000	15,811	132%	(3,811)
East Valley Cities	1,209,070	1,140,113	94%	68,957
Clovis	176,680 ¹	126,932	72%	49,748
Fowler	3,160	9,799	310%	(6,639)
Fresno	880,000 ²	815,910	93%	64,090
Kerman	15,000	14,678	98%	322
Kingsburg	13,800	16,572	120%	(2,772)
Orange Cove	7,000	13,171	188%	(6,171)
Parlier	14,000	18,266	130%	(4,266)
Reedley	35,000	38,354	110%	(3,354)
San Joaquin	7,000	6,814	97%	186
Sanger	19,800	39,543	200%	(19,743)
Selma	37,630	40,074	106%	(2,444)
¹ For Clovis this represents a population projection for the year 2025. Buildout is projected to occur after 2030. ² For Fresno this represents Alternative 10Z from the City's current General Plan Update Program. Source: CMCA				

TABLE 6
COMPARISON OF SCENARIO B/C
WITH GENERAL PLAN POPULATION HOLDING CAPACITIES

<i>Jurisdiction</i>	<i>Population At Buildout of General Plan</i>	<i>Scenario B/C Year 2020 Population</i>	<i>Percent of General Plan Buildout Population</i>	<i>Year 2020 Population Difference with Buildout</i>
Total County	1,679,944	1,443,536	86%	236,408
Unincorporated	430,644	377,218	88%	53,426
Cities	1,249,300	1,066,318	85%	182,982
West Valley Cities	40,230	61,797	154%	(21,567)
Coalinga	16,000	14,756	92%	1,244
Firebaugh	6,700	18,350	274%	(11,650)
Huron	5,530	11,351	205%	(5,821)
Mendota	12,000	17,340	145%	(5,340)
East Valley Cities	1,209,070	1,004,521	83%	204,549
Clovis	176,680 ¹	125,043	71%	51,637
Fowler	3,160	11,662	369%	(8,502)
Fresno	880,000 ²	678,698	77%	201,302
Kerman	15,000	14,854	99%	146
Kingsburg	13,800	25,448	184%	(11,648)
Orange Cove	7,000	9,267	132%	(2,267)
Parlier	14,000	13,526	97%	474
Reedley	35,000	41,384	118%	(6,384)
San Joaquin	7,000	6,828	98%	172
Sanger	19,800	37,662	190%	(17,862)
Selma	37,630	40,149	107%	(2,519)

¹For Clovis this represents a population projection for the year 2025. Buildout is projected to occur after 2030.

²For Fresno this represents Alternative 10Z from the City's current General Plan Update Program.

Source: CMCA

TABLE 7
COMPARISON OF SCENARIO D
WITH GENERAL PLAN POPULATION HOLDING CAPACITIES

<i>Jurisdiction</i>	<i>Population At Buildout of General Plan</i>	<i>Scenario D Year 2020 Population</i>	<i>Percent of General Plan Buildout Population</i>	<i>Year 2020 Population Difference with Buildout</i>
Total County	1,679,944	1,471,077	88%	208,867
Unincorporated	430,644	335,693	78%	94,951
Cities	1,249,300	1,135,387	91%	113,913
West Valley Cities	40,230	53,549	133%	(13,319)
Coalinga	16,000	14,198	89%	1,802
Firebaugh	6,700	13,905	208%	(7,205)
Huron	5,530	10,589	191%	(5,059)
Mendota	12,000	14,857	124%	(2,857)
East Valley Cities	1,209,070	1,081,838	89%	127,232
Clovis	176,680 ¹	154,124	87%	22,556
Fowler	3,160	14,456	457%	(11,296)
Fresno	880,000 ²	725,860	82%	154,140
Kerman	15,000	14,539	97%	461
Kingsburg	13,800	19,919	144%	(6,119)
Orange Cove	7,000	9,172	131%	(2,172)
Parlier	14,000	13,192	94%	808
Reedley	35,000	47,518	136%	(12,518)
San Joaquin	7,000	6,845	98%	155
Sanger	19,800	32,831	166%	(13,031)
Selma	37,630	43,382	115%	(5,752)

¹For Clovis this represents a population projection for the year 2025. Buildout is projected to occur after 2030.

²For Fresno this represents Alternative 10Z from the City's current General Plan Update Program.

Source: CMCA

TABLE 8
COMPARISON OF SCENARIO E
WITH GENERAL PLAN POPULATION HOLDING CAPACITIES

<i>Jurisdiction</i>	<i>Population At Buildout of General Plan</i>	<i>Scenario E Year 2020 Population</i>	<i>Percent of General Plan Buildout Population</i>	<i>Year 2020 Population Difference with Buildout</i>
Total County	1679944	1,505,500	90%	174,444
Unincorporated	430,644	469,124	109%	(38,480)
Cities	1,249,300	1,036,376	83%	212,924
West Valley Cities	40,230	56,400	140%	(16,170)
Coalinga	16,000	11,940	75%	4060
Firebaugh	6,700	8,032	120%	(1,332)
Huron	5,530	16,510	299%	(10,980)
Mendota	12,000	19,918	166%	(7,918)
East Valley Cities	1,209,070	979,976	81%	229,094
Clovis	176,680 ¹	154,076	87%	22,604
Fowler	3,160	7,962	252%	(4,802)
Fresno	880,000 ²	615,026	70%	264,974
Kerman	15,000	20,042	134%	(5,042)
Kingsburg	13,800	13,647	99%	153
Orange Cove	7,000	12,046	172%	(5,046)
Parlier	14,000	17,966	128%	(3,966)
Reedley	35,000	43,746	125%	(8,746)
San Joaquin	7,000	12,262	175%	(5,262)
Sanger	19,800	35,049	177%	(15,249)
Selma	37,630	48,154	128%	(10,524)

¹For Clovis this represents a population projection for the year 2025. Buildout is projected to occur after 2030.

²For Fresno this represents Alternative 10Z from the City's current General Plan Update Program.

Source: CMCA

Scenario B/C

Scenario B/C shifts future population from the cities (notably Fresno and Clovis) primarily to West Valley cities and unincorporated areas. Under this scenario, the projected year 2020 county population is well below general plan population capacity for the county as a whole. More development is projected in the unincorporated areas and less in the cities when compared with the Scenario A.

Under this scenario, the cities with the greatest projected overage of population growth are Fowler (369 percent of capacity), Firebaugh (274 percent), and Huron (205 percent). Fresno and Clovis are projected to be at 77 percent and 71 percent, respectively, of their general plan population holding capacities.

Scenario D

Under this scenario, more development occurs within the unincorporated areas and less in the cities, when compared to the Scenario A.

Under this scenario, six of the eleven incorporated East Valley cities and three of the four West Valley cities would exceed their general plan population capacities. The cities with the greatest projected overage of population growth are Fowler (457 percent of capacity) and Firebaugh (208 percent). Fresno and Clovis are projected to be at 82 percent and 87 percent, respectively, of their general plan population holding capacities.

Scenario E

This scenario projects the most population of the four scenarios, with the total county population approaching 90 percent of the combined population holding capacity of all general plans. Substantial development is anticipated in the unincorporated county, slightly exceeding the population capacity of current County residential zoning. Projected population for the cities is expected to exceed the planning capacities of all their respective general plans except for the cities of Fresno, Clovis, Kingsburg, and Coalinga.

Under this scenario, the cities with the greatest overage of population growth are Huron (299 percent of capacity) and Fowler (252 percent). Fresno and Clovis are projected to be at 70 percent and 87 percent, respectively, of the general plan population holding capacities.

As noted earlier in this paper, the second method of assessing land use capacity is to compare the total new land demand for each area/jurisdiction with the amount of unincorporated land remaining within the LAFCO sphere of influence of the jurisdiction. In the case of the unincorporated county area, community plan and specific plan areas are used. This comparison is made in Table 1 in the next working paper on agriculture. The table shows that under Scenario A, the cities of Huron, Clovis, and Fresno will have a shortage of land within their spheres of influence. Under Scenario B/C, there will be land shortages for Firebaugh, Huron, Clovis, Fresno, and Reedley, and for four of the five unincorporated geographic areas.

Under Scenario D, the cities of Clovis, Fresno, and Reedley, and four of the five unincorporated geographic areas would experience land shortages. And under Scenario E, the cities of Huron, Clovis, Reedley, and San Joaquin, and four of the five unincorporated geographic areas are projected to have land shortages.

2. AGRICULTURE

KEY QUESTIONS

- Where and how much land would be taken out of agricultural production due to urbanization? What crop types or soils might be affected?
- Will new land be put into agricultural use and, if so, where, how much, and what type of crops might be produced given soil suitability or other limitations in these locations?

BACKGROUND

Fresno County is the most agriculturally-productive county in the country. Agricultural production in 1996 generated \$3.3 billion for Fresno County. One out of every three jobs in Fresno County is related to agriculture.

Fresno County produces a wide range of agricultural products. Fresno County's ten leading products (in terms of dollar value) are: grapes; cotton; poultry; tomatoes; milk; almonds; peaches; garlic; cattle; and nectarines. The majority of irrigated crops are grown near and/or between SR 99 and I-5, which is also the location of the county's most fertile soil. Urban land uses are coincidentally concentrated along SR 99.

Cattle grazing is generally limited to the Sierra foothills and the Coastal range. Over the last few years, the county has experienced a trend toward more intensive row crop vegetables such as tomatoes, lettuce, garlic, onions, and other specialty products that require more hand labor and less land. Fruit and nut trees have also experienced steady growth.

COMPARISON OF SCENARIOS

How future population growth and urban development in Fresno County will affect agricultural resources, practices, and agriculturally-related employment will vary depending upon the amount, type, and location of this growth. Almost all of the cities and urbanized areas in Fresno County are surrounded by prime farmland and/or farmland of statewide importance, both inside and outside their spheres of influence (SOIs). Prime farmland and farmland of statewide importance are the highest-quality agricultural lands according to the State's Farmland Mapping and Monitoring Program.

Taking land out of agricultural production to accommodate urban development will result in shifts in agricultural operations, which may include the following:

- **Land replacement.** Land that is not currently being used as farmland may be put into production. However, it is not likely that lost prime or important farmland will be exchanged for "like" farmland. New lands put into production will likely not have the same quality and production capabilities because they are likely to be marginal lands due to limited soil capability, water availability, climatic conditions, or ownership and parcel patterns.

- **Reduction in some crop types.** Some crop types may be reduced in overall production in the county if suitable land is not available, or if relocation to suitable alternative land is not possible or desirable. This may result in an economic loss to the county.
- **Shift in crop types produced.** Some farmers may shift to different crop types, depending on the suitability of available land, thereby reducing the production of some crops and increasing the production of others. Production levels and product quality for some crop types may remain stable due to more efficient use of land and farm management techniques. If lands with prime and important soils become more scarce, farmers using these lands may shift to crops with higher market values. Some farmers may experiment with different crop types in new locations in an effort to adjust to changes in market demands, land, or water availability, and the ability of crops to adapt to different locations and climate conditions. In some areas such as the westside of the county, for instance, grazing land may be put into fruit trees or field crop production.

The analysis of impacts on agricultural land must begin with a discussion of the magnitude and pattern of projected new development. Table 1 shows the amount of unincorporated land in each city sphere of influence and in each unincorporated community plan and specific plan area. These are compared to the amount of land projected to be developed for each city sphere of influence (SOI) or county plan area by the year 2020, indicating whether more land or less land will be developed than remains in the unincorporated city sphere or county plan areas.

This analysis assumes land that is within a sphere of influence is committed eventually to urban development and annexation, while land outside spheres is either intended for permanent agriculture or open space, or its future simply has not been defined.

As noted in the previous working paper on land use, there are several shortcomings in the comparison appearing in Table 1: 1) it does not account for infill of vacant lands and intensification of underutilized land within existing city limits; 2) it glosses over the existing unincorporated population and developed land within the spheres of influence, treating the unincorporated sphere as if it were vacant or entirely in agricultural use; and 3) LAFCO-adopted spheres of influence do not correspond directly with general plan areas, although for most cities in Fresno County they are close.

TABLE 1									
AVAILABLE LAND AND LAND DEMAND									
Total Gross Acres - Residential and Non-Residential Land Demand									
Area/Jurisdiction	1996 Acreage ¹ In SOI	SCENARIOS							
		A	Difference ²	B/C	Difference ²	D	Difference ²	E	Difference ²
Coast Range/Foothills	0	22	(22)	5	(5)	6	(6)	19	(19)
West Valley Total	5,514	2,675	2,839	4,467	1,047	2,911	2,603	3,228	2,286
Coalinga SOI	2,624	587	2,037	423	2,201	372	2,252	234	2,390
Firebaugh SOI	1,216	514	702	1,394	(178)	911	305	496	720
Huron SOI	320	362	(42)	370	(50)	305	15	716	(396)
Mendota SOI	896	514	382	694	202	478	418	841	55
Unincorporated West Valley	458	698	(240)	1,586	(1,128)	846	(388)	941	(483)
East Valley Total	54,164	57,063	(2,899)	59,295	(5,131)	62,196	(8,032)	67,564	(13,402)
Clovis SOI	4,736	5,752	(1,016)	5,978	(1,242)	8,796	(4,060)	8,436	(3,700)
Fowler SOI	3,328	485	2,843	674	2,654	1,009	2,319	375	2,953
Fresno SOI	24,128	36,244	(12,116)	25,830	(1,702)	30,079	(5,951)	20,265	3,863
Kerman SOI	1,856	609	1,247	636	1,220	622	1,234	1,107	749
Kingsburg SOI	2,176	881	1,295	2,062	114	1,346	830	797	1,379
Orange Cove SOI	640	451	189	163	477	156	484	373	267
Parlier SOI	704	618	86	267	437	242	462	602	102
Reedley SOI	1,920	1,681	239	1,984	(64)	2,698	(778)	2,294	(374)
San Joaquin SOI	320	215	105	212	108	214	106	591	(271)
Sanger SOI	1,792	1,589	203	1,644	148	1,126	666	1,359	433
Selma SOI	4,032	1,626	2,406	1,728	2,304	2,144	1,888	2,489	1,543
Unincorporated East Valley	8,532	6,913	1,619	18,116	(9,584)	13,765	(5,233)	28,876	(20,344)
Sierra Foothills	1,195	976	219	3,916	(2,721)	5,246	(4,051)	1,674	(479)
Sierra Nevada Mountains	9,598	387	9,211	301	9,297	317	9,281	927	8,671
Fresno County Total	70,471	61,123	9,349	67,984	2,487	70,675	(205)	73,412	(2,943)

¹For cities, this represents the total amount of unincorporated land outside city limits but within the city sphere of influence. For the county, this represents the unincorporated area within various community plan and specific plan areas.

²A bold number in parentheses in the "Difference" column represents land demand that exceeds the remaining available land within the sphere of influence or planning/specific plan area.

Sources: Consultant Team; Fresno LAFCO

Scenario A

Coast Range Foothills

Scenario A continues current growth trends. Under this scenario the Coast Range Foothills would require 22 acres of land to accommodate new urban development. There are no cities or unincorporated urbanized areas in this area. None of the land in this area is classified as prime or important farmland, and there are very few crops in the area. This area is generally used as rangeland for grazing cattle. Much of the land in this area is owned by the Bureau of Land Management, which in many cases leases the land for grazing. Conversion of land in this area and impacts on crop production would be insignificant.

West Valley

As shown in Table 1, the cities in the West Valley area collectively will not need as much land for projected development under Scenario A as currently exists within their SOIs, except for Huron, which would require 42 more acres than currently in its unincorporated SOI. This means additional land outside of the existing SOI would be required. The Huron SOI is primarily prime or important farmland, and conversion of this land may result in displacement of agricultural operations to other areas or an overall reduction in crop output. Crops in Huron's SOI primarily consist of field crops. The location of new urban growth in the unincorporated West Valley cannot be precisely determined, however, it is likely to occur in existing community planning areas. While predicting which crop types would be impacted by growth in the unincorporated area of the West Valley is difficult, it is likely that urbanization would affect field crops (e.g., vegetables) since they make up the majority of crops grown in the area. Table 2 lists the type and amount of crops produced in West Valley SOIs. Data for this table was derived from 1997 County Assessor land use data.

TABLE 2						
WEST VALLEY CROP TYPES AND ACREAGE						
Location	Field & Vegetable Crops, Irrigated Pasture*	Grazing (Native Pasture)	Fruit & Nuts	Nursery Products	Livestock & Poultry	Industrial Crops (Timber)
Coalinga SOI	640	0	0	0	0	0
Firebaugh SOI	865	31	0	0	0	0
Huron SOI	153	0	0	0	0	0
Mendota SOI	684	42	0	0	0	0
*Crop types and acreage change from season to season based on market conditions and water availability.						
Source: Fresno County Assessor, 1997						

While County Assessor data indicates that farms in the unincorporated West Valley primarily grow field crops, in recent years more permanent crops such as apples, nut crops, and grapes are being planted in the area.

East Valley

The East Valley would require a total area of 2,899 additional acres to accommodate the development projected in Scenario A in excess of what is currently available in the existing unincorporated SOIs (including 1,619 acres in unincorporated county planning areas). Table 1 indicates that Clovis and Fresno would require substantially more land, 1,016 acres and 12,116 acres, respectively, outside their existing SOIs, while other cities would require 10,000 acres less land for urbanization than exists within their collective spheres of influence. The East Valley area would lose over 57,000 acres of prime farmland under Scenario A from all development combined.

Agricultural production in the East Valley primarily involves fruit and nut trees and vineyard crops such as raisins, wine, and table grapes. Loss of these crops could perhaps be made up in other areas of the county, or farmers may reduce their cultivation of these crops. Table 3 provides crop data for the East Valley area SOIs, which was derived from 1997 County Assessor land use data.

TABLE 3						
EAST VALLEY CROP TYPES AND ACREAGE						
<i>Location</i>	<i>Field & Vegetable Crops, Irrigated Pasture*</i>	<i>Grazing (Native Pasture)</i>	<i>Fruit & Nuts</i>	<i>Nursery Products</i>	<i>Livestock & Poultry</i>	<i>Industrial Crops (Timber)</i>
Clovis SOI	268	174	900	0	18	0
Fowler SOI	44	0	2,778	0	0	0
Fresno SOI	2,360	248	4,879	37	315	0
Kerman SOI	869	0	497	0	0	0
Kingsburg SOI	26	0	1,107	0	0	0
Orange Cove SOI	63	0	523	0	0	0
Parlier SOI	0	0	597	0	0	0
Reedley SOI	0	0	1,124	0	0	0
San Joaquin SOI	328	0	0	0	0	0
Sanger SOI	42	0	1,333	0	0	0
Selma SOI	82	0	2,447	3	2	0
*Crop types and acreage change from season to season based on market conditions and water availability.						
Source: Fresno County Assessor, 1997						

Sierra Foothills

Under existing specific plans for the Sierra Foothills, approximately 1,195 acres are designated for development. Scenario A would require only 976 acres for new development. These areas do not include prime or important farmland, nor are they typically farmed; thus, impacts to agricultural resources and crops would be minimal. Land surrounding the foothill communities is used for cattle grazing, an activity which may be displaced should land in this area be developed.

Sierra Nevada Mountains

Scenario A would require substantially less land than is designated for urbanization in the specific plans and community planning area of Shaver Lake. Development in this area would result in the conversion of forestry resources more than agricultural resources since the climate and soil conditions are too poor for agricultural production. The Sierras are used for cattle grazing, which may be displaced by new development.

Summary of Impacts - Scenario A

Combined development within the SOIs and the unincorporated areas of the county under Scenario A would consume approximately 61,123 acres. Most of the land in or surrounding the Coast Range Foothills, Firebaugh, Mendota, the Sierra Foothills, and the Sierra Nevada Mountains is not prime or important farmland. These areas represent approximately 2,412 acres where future development under Scenario A will not significantly impact important soil resources. However, approximately 58,710 acres of prime or important farmland are projected to be lost to new development. This is substantial acreage, but less than what could occur under the existing SOIs and community plans. Crop loss would primarily involve fruit and nut trees and vineyards in the East Valley and field crops in the West Valley.

Scenario B/C

Coast Range Foothills

Under Scenario B/C, the unincorporated Coast Range would experience approximately five acres of new development. As discussed under Scenario A, this area typically does not produce crops, and does not include areas with significant prime or important farmland. Thus, the impacts of Scenario B/C would be minimal, and less than under in Scenario A.

West Valley

As shown in Table 1, Scenario B/C would convert approximately 4,500 acres to urban uses. Approximately 2,000 acres of this land is not classified as prime or important farmland, thus, only about 2,500 acres of prime or important farmland may be lost. The cities of Firebaugh and Huron indicate the need for more land than currently is designated in their SOIs, 178 acres and 50 acres, respectively, to accommodate urban growth projections for Scenario B/C. The unincorporated part of this area is projected to require approximately 1,586 acres, but it is undetermined how this development would be distributed. However, this represents approximately 1,128 acres more land than is currently planned for development in the unincorporated West Valley community plans. Crop types currently grown in the West Valley SOIs include primarily field and vegetable crops. Given the projected development in this scenario, all land currently farmed in the SOIs of

Firebaugh and Huron would be removed from agricultural production. Other areas in the West Valley would also experience crop loss, but generally less than currently anticipated in the existing SOIs of the other cities.

East Valley

Eight of the cities in the East Valley would require less land than currently is available within their SOIs (a total of 7,462 acres less). Clovis (1,242 acres), Fresno (1,702 acres), and Reedley (64 acres), however, would exceed the land available within the SOIs by a total of 3,008 acres. This scenario also projects far more land in the unincorporated area of the East Valley to be developed than is currently planned for (18,117 acres versus 8,532 acres under the existing community plans). This would impact about 9,600 acres of unincorporated county land surrounding community plan areas. The areas surrounding the cities in the East Valley are generally all prime or important farmland.

Approximately 59,295 acres of prime or important farmland in the East Valley would be converted to urban land uses under Scenario B/C. This is over 5,000 acres more than is available in the existing SOIs and community plans.

Conversion of agricultural land in the Fresno SOI would eliminate almost 5,000 acres of fruit and nut trees, over 2,300 acres of field crops, 250 acres of grazing land, and over 300 acres of land devoted to livestock and poultry production. Clovis would also lose significant acreage in fruit and nut trees, field crops, and grazing land. Other areas would experience less significant agricultural land losses. Table 3 lists the existing crop acreage for each city SOI in the East Valley. As noted in the discussion of soil loss for the East Valley, the unincorporated area would lose approximately 18,000 acres of fruit and nut trees and field crops.

Sierra Foothills

New development under Scenario B/C in the Sierra Foothills will require 3,916 acres, which is over 2,700 acres more than currently included in the Sierra community planning areas. Very little of this land is prime or important farmland, so impacts to soil resources and crop production are not projected to be significant.

Sierra Nevada Mountains

As discussed under Scenario A, this area does not have significant soil or agricultural resources. However, some of this area is used for cattle grazing. The projected development for this scenario would convert 301 acres of the 9,598 acres included in community planning areas.

Summary of Impacts - Scenario B/C

Combined new development in the SOIs and the unincorporated areas of the county under this scenario would consume approximately 67,984 acres of land, which is more than projected for Scenario A, but still within the capacity of the city SOIs and county community plan areas. Most of the lands in or surrounding SOIs or planning areas in the Coast Range Foothills, Firebaugh, Mendota, the Sierra Foothills, and the Sierra Nevada Mountains are not prime or important farmland. These areas represent approximately 6,310 acres of land where growth under Scenario B/C will not significantly impact soil resources; however, production of field crops will be affected

in those areas. Approximately 61,674 acres of prime or important farmland are projected to be developed. However, this is about 2,500 acres less than would occur under existing SOIs and community plans.

Scenario D

Coast Range Foothills

New development in this area would require only about six acres under Scenario D. As previously discussed, this area generally does not have prime or important soil resources, and is typically used only for cattle grazing. Conversion of such a small area would not be significant.

West Valley

Overall, projected development within the West Valley would convert less farmland and stay within the existing city SOIs compared to the Scenarios A and B/C, since there are no cities that would need land in excess of their existing SOI. Approximately 2,911 acres of land would be needed to accommodate projected growth under this scenario. This is over 2,600 acres less than provided for in the existing SOIs and community plans. About 1,500 acres of prime or important farmland would be converted to urban land uses under this scenario, which consist primarily of field crops. Development in the unincorporated area would require approximately 388 acres more land than is currently provided for in the existing community plans.

East Valley

For Scenario D for the East Valley, an additional 8,032 acres would be needed to accommodate projected development above what is currently available within SOIs and county community plan areas. Specifically, Clovis, Fresno, and Reedley would exceed the amount of land available within their existing SOIs. The remaining cities and unincorporated areas would require substantially less land than available in existing SOIs. However, Scenario D would convert over 62,000 acres of mostly prime or important farmland to other uses. The crop types in this area are mostly fruit and nut tree crops and field crops, as shown in Table 3.

Sierra Foothills

This scenario would utilize more land in the Sierra Foothills than any of the other scenarios. As previously discussed, however, there are no significant soil resources in this area and the area is used for cattle grazing.

Sierra Nevada Mountains

Development in this area would require 317 acres, an amount of land that falls between Scenarios A and B/C but is significantly less than currently planned.

Summary of Impacts - Scenario D

Combined development in the SOIs and the unincorporated areas of the county would consume approximately 70,675 acres of land, which is more land than Scenarios A and B/C, and slightly more (205 acres) than available within existing SOIs and county planning areas. Land in or

surrounding the Coast Range Foothills, Firebaugh, Mendota, the Sierra Foothills, and the Sierra Nevada Mountains account for approximately 7,263 acres of land where future growth under Scenario D will not significantly impact soil resources. However, approximately 63,413 acres of prime or important farmland are expected to be developed. This amount of land is roughly equal in size to the city of Fresno today. As previously noted, the most significant losses would be in fruit and nut tree crops and field crops.

Scenario E

Coast Range Foothills

New development in this area would require approximately 19 acres under Scenario E. This area generally does not have prime or important soil resources, and is typically used only for cattle grazing. Conversion of this small area would not be significant.

West Valley

Scenario E would urbanize more land than Scenarios A and D, but less than Scenario B/C. This scenario would require almost 400 acres beyond Huron's SOI to accommodate growth, which is generally surrounded by prime or important farmland, and almost 500 more acres than planned for in the unincorporated area of the West Valley. Overall, less land is projected to be developed than is available within West Valley SOIs. Approximately 3,228 acres would be needed to accommodate the projected growth under this scenario. About 1,900 acres of prime or important farmland, which is comprised primarily of field crops, would be converted to urban land uses under this scenario.

East Valley

Under Scenario E for this area, approximately 13,400 more acres would be needed to accommodate projected growth above what is currently available in city SOIs and county planning areas. Of particular interest is the significantly larger amount of land that would be required in the unincorporated area (nearly 29,000 acres). This is substantially higher than in all the other scenarios, and indicates the need for more than 20,000 more acres in the unincorporated areas than are currently planned. However, while Clovis would exceed the holding capacity of its SOI by 3,700 acres, Fresno would require about 4,000 acres less than included in its current SOI. Reedley and San Joaquin also indicate insufficient holding capacity, which would impact unincorporated areas outside their SOIs.

This scenario would convert approximately 67,564 acres of prime or important farmland to urban land uses, which again, is approximately the size of Fresno. Crop losses, primarily in fruit and nut trees and field crops, would also be significant under this scenario.

Sierra Foothills

The Sierra Foothill area is projected to require over 1,600 acres of land for development, which is less than in all of the other scenarios except Scenario A. Cattle grazing land would likely be most affected.

Sierra Nevada Mountains

This scenario would require more land for growth in the Sierra Nevada than any of the other scenarios, but less than is currently planned. This scenario would not affect agricultural production.

Summary of Impacts - Scenario E

The combined development in the SOIs and the unincorporated areas of the county would consume approximately 73,412 acres, which is more land than required in any of the other alternatives. Most of the lands in or surrounding SOIs and planning areas in the Coast Range Foothills, Firebaugh, Mendota, the Sierra Foothills, and the Sierra Nevada Mountains are not prime or important farmland. These areas represent approximately 3,343 acres where future growth under Scenario E will not significantly impact important soil resources. Approximately 70,000 acres of prime or important farmland are expected to be developed. This is about 12,434 acres of prime or important farmland that could be converted under the existing SOIs and community plans. Crop type losses in this scenario are generally the same as in the other scenarios (i.e., significant reductions in fruit and nut trees and field crops).

Summary Comparison

On a countywide basis, the most development-intensive scenario is Scenario E, and the least development-intensive scenario is Scenario A. The impacts to agriculture are specific to areas, cities, and community and specific plan areas. The most fertile soil is located in the East Valley and in parts of the north and south West Valley. This corresponds to where the most intensive and highest-dollar-value crops are produced. Urbanization will also likely occur in these areas under all the scenarios, resulting in the loss of between 60,000 and 73,000 acres of productive crop land and prime or important farmland.

Several factors will affect crop trends and changes in production. New locations for agricultural operations and crop types are driven by market forces, farming costs, climate, soil capacity, and water availability. Most changes will occur in the West and East Valley, areas since these are the areas that are projected to experience the greatest development. Water availability and soil capability in the Sierra Foothills is limited, thus, growing agricultural crops, even for raisin grapes, would be difficult.

Most farmland in the East Valley, which has a majority of the highest quality land, is already in permanent crops such as tree fruit and nut crops, since these crops have very strong markets and the climate and soil conditions are suitable for these crops. It cannot be assumed that farmers currently operating in the East Valley will relocate their operations to other areas of the county, such as in the West Valley, for several reasons. First, if agricultural land near Fresno or Clovis is sold to development interests, the landowner is probably doing so for retirement purposes. Many farmers view their land as savings for their future. Farmers interested in relocating their farming operations may not be able to continue the same type of operations in the West Valley because the West Valley area does not have the same growing conditions. For instance, as discussed in the introduction to this section, soil may not be able to be exchanged for "like" soil in other locations. Many areas of the West Valley have severe soil drainage problems and soil salinity. Very few crop types are tolerant and adaptable to over saturation and/or salinity. Tree crops, for example, cannot tolerate saline soil conditions.

Water availability is an issue for agriculture valleywide. However, farming in the West Valley is more dependent on water availability than in the East Valley. The East Valley has larger water basin reserves, and is not as sensitive to water import issues. Water availability can affect the crop types produced since it affects the cost of doing business. The County is currently involved in water delivery contract negotiations for water allocations. Depending on the outcome of these negotiations, water may be a more expensive resource in the West Valley since it is more scarce in that area. Also, water is needed in the West Valley to help reclaim soil from saline conditions. If negotiations are favorable, the West Valley should be able to continue existing operations relatively unaffected. A trend to higher value crops such as tomatoes, onions, and garlic in the West Valley may also continue. If water negotiations are not successful, then certain existing crops may be discontinued. For instance, cotton, grains, and alfalfa are all grown in the West Valley, yet they require different amounts of water. Cotton and grains require more water than alfalfa or other silages, thus, they are more dependent on the outcome of the pending water contract negotiations.

3. TRANSPORTATION AND CIRCULATION

KEY QUESTIONS

- Will new development occur in any area where the existing and planned roadway system has insufficient capacity to provide LOS 'C' or better conditions for the traffic generated by the growth? If so, can the roadway capacity be increased to meet the increased traffic demand?
- Would new development significantly increase the volume of heavy truck traffic? If so, what general impacts would result from the increased truck traffic?
- Would new development result in a significant increase in the use of rail? If so, do existing rail facilities have the capacity to accommodate the increased demand or will new facilities be necessary to increase rail capacity, or should existing rail facilities that are planned for abandonment be reconsidered?
- Would new development significantly increase the use of aviation facilities? If so, do existing aviation facilities have the capacity to serve this additional demand or would new aviation facilities be necessary?
- Would new development increase demand for transit service?

BACKGROUND

The existing roadway system in Fresno County consists of both state highway facilities and county roads. State highways are either multi-lane freeways (such as I-5, SR-99, and the portion of SR-41 between SR-99 and the Madera County line) designed to serve inter-regional and regional traffic, or typical two-lane rural highways, which link the freeways to the Fresno County roadway system. County roadways are principally two- or four-lane facilities (with a few six-lane roadway segments) that primarily serve regional and intra-regional (local) traffic.

Fresno County does not have an adopted, comprehensive level of service standard. However, using Level of Service "C" as the minimum acceptable service level, most roadways in unincorporated Fresno County operate at an acceptable level of service. In 1997, roadways operating at LOS "D" or worse included SR-41 between Mountain View and American; SR-99 between Bethel and SR-43; SR-99 between Merced Street and Clovis Avenue; SR-99 between Herndon and the Madera County line; and Ashlan Avenue at Palm. Several arterials within the cities of Fresno and Clovis also operate at LOS 'D' or worse.

Most goods in Fresno County are transported by truck using the county's freeway, highway, and arterial roadway system. Freight movement is increasing rapidly, especially in heavy (five or more axle) trucks. High volume, heavy truck traffic shortens pavement life, adds to traffic congestion, and reduces traffic safety.

There are two rail mainlines that run through Fresno County in a north-south direction. The Burlington Northern and Santa Fe Railway Company owns a line that connects Fresno County with Sacramento and the Bay Area to the north and with Bakersfield to the south. The Union Pacific Railway owns and operates a line that also connects Fresno County northward to Sacramento and the Bay Area and southward to Bakersfield. Branch lines connect these mainlines to the towns of Kerman, Mendota, and Firebaugh in the west, and Sanger and Reedley to the east. All of these lines are used primarily for goods movement, but the Union Pacific Line also provides passenger rail service.

The Fresno Yosemite International Air Terminal (FYI) is the primary passenger aviation facility in Fresno County. Located in the city of Fresno, FYI handles approximately 200,000 operations per year, consisting mostly of passenger service provided by 12 airlines and four fixed-base operators. The second-largest airport facility in Fresno County is the Fresno-Chandler Downtown Airport, which handles 75,000 operations per year and is the federally-designated "reliever" airport for FYI. Seven other "basic utility" airports are located throughout the county, providing a variety of services on a much lower scale than FYI or Fresno-Chandler.

Transit services are provided by several agencies and private companies. Fresno Area Express (FAX) is the primary service provider in the Fresno-Clovis Metropolitan Area (FCMA). FAX operates 12 routes, some of which extend to the communities of Clovis, Pinedale, Highway City, Calwa, and Malaga. Clovis Stageline provides service within the city of Clovis and includes connections to FAX. The Fresno County Rural Transit Agency (FCRTA) is responsible for providing intracity transit service to rural Fresno County (the portions of the county outside of the FCMA). Most of the larger communities in rural Fresno County have FCRTA subsystems which provide intra-city transit service. Several private companies, such as Orange Belt Stage Lines, Greyhound, and Transportes Intercalifornias provide service linking Fresno County to the surrounding region.

COMPARISON OF SCENARIOS

Streets and Highways

The impacts of the four scenario combinations were analyzed using the Fresno County Travel Demand Model, which is maintained by the Council of Fresno County Governments (COFCG). The model translates land use and development information into traffic volume projections. The inputs to the model are estimates of the amount and location of existing and future housing units and employment by type, and descriptions of the existing and planned roadway and transit systems. The model covers all of Fresno County, including its cities and unincorporated areas.

Each of the four scenarios represents a different perspective on how the county could develop through the year 2020. To provide a consistent analysis, all four scenarios were evaluated using the same assumptions about future transportation improvements. It was assumed that only those transportation improvements contained in COFCG's 2016 Regional Transportation Plan (RTP) would be completed by 2020.

As federal regulation requires the RTP to be "financially constrained," the RTP includes a financial plan to demonstrate how the capacity improvements can be implemented while the existing transportation system is being maintained. A major component of this financing plan is Measure "C", the half-cent sales tax for funding transportation improvements for 20 years that was passed

by Fresno County voters in 1986. The 1996 RTP provides a rational base for comparing the impacts of the economic and growth scenarios. Tables 1 and 2 outline the short-term and long-term transportation improvement programs contained in the 1996 RTP. The year 2020 transportation system also assumes implementation of projects in the County's 1997-2004 Roadway Improvement Program (RIP).

TABLE 1 SHORT-TERM TRANSPORTATION IMPROVEMENT PROGRAM Fresno County FY 1996/97 through FY 2002/03			
SR	Limits/Postmiles	Description	Est. Cost¹ (\$1,000)
168	Fut. 180 to 0.1 mi. N. of Shields 0.0/1.9	Const. 6-ln Frwy	\$104,808
168	From 0.1 mi. N. of Shields to Gettysburg 1.9/3.4	Const. 6-ln Frwy	\$49,637
168	From Gettysburg to Bullard 3.4/5.3	Const. 6-ln Frwy	\$42,794
168	Temperance to Shepherd	Const. 4-ln Exprwy	\$20,640
180	SR 41-Chestnut 58.4/60.9	Const. 6-ln Frwy	\$82,938
41	Jensen Ave. to SR 99 20.7/22.1	Const. 4-ln Frwy	\$26,380
41	North Ave. to Jensen Ave. 20.1/20.7	Const. 4-ln Frwy	\$7,580
201	SR 99 to Tulare County Line 0.01/1.3	Partial 2 ln. to 4 ln. from SR 99/Marion/L. Turn Marion to Tulare Co. line	\$7,230
33	Klepper Ave. to Kamm 9.7	Add turn lanes	\$752
99	Fresno-Herndon Ave. 31.0	Rehabilitate Bridge Deck	\$450
99	Jensen Ave. to Ventura St. 18.6	Install Median Barrier	\$950
5	Coalinga-Avenal Rdside Rest 1.3	Upgrade sewer system	\$524
99	Near Huron (E. of I-5) 29.9	Message signs	\$156
41	Aud. OC-Mad. Co. Line 32.2/33.4	Convert 2-ln. Hwy → 4 ln. Frwy	\$23,546
41	Floral Ave. to North Ave. 12.1/20.1	4 ln. Exprwy/2 ln. Exprwy	\$40,810
41	Floral Ave. to Floral 6.1/12.1	Const. 2 ln. Exprwy	\$20,350
180	Whitesbridge to 4 mi. Slgh 27.3/31.4	Widen, AC Overlay	\$13,000
180	4 mi. Slgh to Yuba Ave. 31.4/36.6	Widen, AC Overlay	\$12,660
180	Yuba Ave. to First St. 36.6/42.5	Widen, AC Overlay	\$6,860
180	Vineland to Grantland 42.9/50.4	Widen, AC Overlay	\$9,380
180	Belmont to Marks 34.8/36.4 - 43.9/45.450.8/52.4	Widen, Const. Passing Lanes	\$2,270
99	Jensen Ave. to Ventura St. 18.3	Const. NB Aux. lane	\$5,287
180	Tempance Ave. to Acdmy Ave. 65.6/71.6	Const. 4 ln Exprwy	\$27,150
33	Los Gatos Crk. to Palmer 16.1/20.1	Widen, AC Overlay, Realignment	\$5,060
33	Bass Ave. to Helm Canal Rd. 62.51/69.64	Widen, AC Overlay, Realignment	\$9,880
¹ In thousands of dollars.			
² Measure C project - estimated construction date.			
Source: Council of Fresno County Governments			

TABLE 2 LONG-TERM TRANSPORTATION IMPROVEMENT PROGRAM Fresno County FY 2003/04 through FY 2015/16			
SR	Limits/Postmiles	Description	Est Cost¹ (\$1,000)
168	Shaw Ave. to Fowler Ave. 4.3/7.6	Const. 6/4-ln Frwy	\$86,120
180	Chestnut Ave. to Clovis Ave. 60.7/63.6	Const. 4-ln Frwy	\$105,000
180	Academy Ave. to Trimmer Springs 71.6/75.0	Const. 2 ln Exprwy	\$18,400
168	Fowler Ave. to Temp. Ave 6.6/9.3	Const. 4-ln Frwy	\$45,450
180	Clovis Ave. to Temp. Ave 63.6/65.6	Const. 4-ln Exprwy	\$40,600
180	Trimmer Springs to Frankwood 75.0/78.2	Const. 2-ln Exprwy	\$17,380
180	Frankwood Ave to Cove Ave 78.2/84.0	Widen, Alignment	\$21,680
180	Brawley Ave. to SR 99 53.6/56.7	Const. 2/4/6-ln Facility	\$73,280
¹ In thousands of dollars.			
² Measure C project - estimated construction date.			
Source: Council of Fresno County Governments			

The street/highway analysis of the scenarios involved determining the year 2020 "level of service" on each segment of the major roadways (i.e., freeways and arterials) in Fresno County. Level of service is a qualitative assessment that measures the effect of a number of transportation-related factors, including speed and travel time, interruptions, freedom to maneuver, safety, driving comfort and convenience, and operation costs. Levels of service cover the entire range of traffic operations that are designated from "A" (best conditions) to "F" (the worst conditions). Level of Service "E" describes conditions approaching or at maximum capacity.

This analysis of Fresno County's roadway system employed a level of service methodology, developed by the Florida Department of Transportation (FDOT), called the "Florida Tables." FDOT's methodology, which has been used by Fresno County and COFCG in the past, provides level of service and volume thresholds for freeway, arterial, and highway facilities using speed, saturation flow, signalization, and a number of other variables. Facilities are grouped by the development characteristics in either urbanized, transitioning urbanized, or rural undeveloped areas.

Table 3 shows that between 1995 and 2020 under Scenario A, the number of daily "person trips" within Fresno County would increase by about 80 percent. Trips in unincorporated areas are expected to grow at an even faster rate (about 120 percent increase).

Fresno County is expected to experience an even faster growth in vehicle miles of travel (VMT). The estimated 1995 daily VMT for the county (16,100,000) is expected to more than double (34,700,000) by the year 2020 under Scenario A. The State's investment in maintaining and upgrading the inter-regional highway system, however, will not keep pace with this growth. In 1986, voters approved a measure to impose a sales tax increase (Measure C) to fund improvements to the regional and local transportation network over a 20-year period. Unfortunately, this anticipated revenue will not be sufficient to finance the county's entire 20-year planned system.

TABLE 3 INCREASE IN DAILY PERSON-TRIPS UNDER SCENARIO A Fresno County 1995-2020				
<i>Area *</i>	<i>Existing</i>	<i>Scenario A 2020</i>	<i>Increase</i>	<i>Percent</i>
Clovis	491,262	1,068,002	576,740	117.4%
Coalinga	60,376	107,843	47,467	78.6%
Firebaugh	33,908	74,187	40,279	118.8%
Fowler	32,700	74,127	41,427	126.7%
Fresno	3,800,874	6,277,356	2,476,482	65.2%
Huron	19,227	49,503	30,276	157.5%
Kerman	42,924	87,942	45,018	104.9%
Kingsburg	74,033	139,514	65,481	88.4%
Mendota	32,221	75,693	43,472	134.9%
Orange Cove	27,949	59,657	31,708	113.4%
Parlier	41,769	88,216	46,447	111.2%
Reedley	137,367	279,079	141,712	103.2%
San Joaquin	14,779	31,468	16,689	112.9%
Sanger	132,247	249,086	116,839	88.3%
Selma	128,643	250,328	121,685	94.6%
Subtotal Incorporated Cities	5,070,279	8,912,001	3,841,722	75.8%
Uninc. Coast Range Foothills	763	1,660	897	117.6%
Uninc. East Valley	544,672	1,207,659	662,987	121.7%
Uninc. Sierra Foothills	57,728	125,979	68,251	118.2%
Uninc. Sierra Nevada	37,358	63,220	25,862	69.2%
Uninc. West Valley	52,055	136,314	84,259	161.9%
Subtotal Unincorporated	692,576	1,534,832	842,256	121.6%
TOTAL	5,762,855	10,446,833	4,683,978	81.3%
*Includes entire sphere of influence area for incorporated cities.				
Source: DKS Associates				

Tables 4 and 5 show the estimated percentage of lane-miles of roadway by level of service category in the year 2020 under Scenario A, assuming full implementation of the improvements in the Regional Transportation Plan. An estimated 27 percent of the lane-miles in Fresno County would operate at Level of Service "D" or worse conditions; about 14 percent of the county's lane-miles would operate at LOS "F". Most of this congestion would occur within the spheres of influence

of the cities, particularly the cities of Fresno and Clovis. About 11 percent of the lane-miles in the unincorporated portion of Fresno County would operate at LOS "D" or worse in the year 2020 under Scenario A; about two percent would operate at LOS "F" conditions.

TABLE 4 ESTIMATED LANE-MILES OF ROADWAY BY LEVEL OF SERVICE SCENARIO A Fresno County 2020							
<i>Area*</i>	<i>Level of Service</i>						<i>TOTAL</i>
	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	
Fresno/Clovis	43	1,260	263	204	170	701	2,641
Other Incorporated	90	229	93	110	56	57	635
Unincorporated	769	983	607	135	98	51	2,643
TOTAL COUNTY	902	2,472	963	449	324	809	5,919
*Includes entire sphere of influence area for incorporated cities.							
Source: DKS							

TABLE 5 PERCENTAGE OF LANE-MILES OF ROADWAY BY LEVEL OF SERVICE SCENARIO A Fresno County 2020							
<i>Area*</i>	<i>Level of Service</i>						<i>TOTAL</i>
	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	
Fresno/Clovis	1.6%	47.7	10.0	7.7%	6.4%	26.6	100%
Other Incorporated	14.2%	36.0	14.6	17.3	8.9%	9.0%	100%
Unincorporated	29.1%	37.2	23.0	5.1%	3.7%	1.9%	100%
TOTAL COUNTY	15.1%	41.8	16.3	7.6%	5.5%	13.7	100%
*Includes entire sphere of influence area for incorporated cities.							
Source: DKS Associates							

Table 6 shows the estimated daily person trips generated by each of the four economic and growth scenarios in 2020. Scenarios B/C, D, and E would all generate more person trips than Scenario A. Scenario E would generate the most new trips in the unincorporated areas, while Scenario D would result in the largest increase in the incorporated areas.

The location of jobs and housing, not just the number of trips generated, will affect the amount of travel (i.e., vehicle-miles of travel) on the county's roadway system. Tables 7 and 8 compare the number and percentage of roadway lane-miles by level of service category for the four scenarios.

Tables 9 and 10 show the estimated number and percentage of vehicle-miles of travel (VMT) that would occur on roadways operating at LOS "A" through LOS "F" conditions. Note that under each of the scenarios, the assumed 2020 roadway network is the same. It was assumed that only those improvements contained in COFCG's 2016 Regional Transportation Plan would be completed by 2020.

TABLE 6 ESTIMATED 2020 DAILY PERSON TRIPS GENERATED BY SCENARIO Fresno County 2020				
<i>Area*</i>	<i>Scenario</i>			
	<i>A</i>	<i>B/C</i>	<i>D</i>	<i>E</i>
Clovis	1,068,002	1,098,021	1,462,425	1,262,867
Coalinga	107,843	96,896	94,589	85,519
Firebaugh	74,187	134,464	100,878	73,213
Fowler	74,127	86,489	112,459	70,646
Fresno	6,277,356	5,667,611	6,080,152	5,427,340
Huron	49,503	49,074	42,962	75,678
Kerman	87,942	87,974	85,071	118,820
Kingsburg	139,514	213,802	169,515	135,852
Mendota	75,693	86,571	68,694	98,166
Orange Grove	59,657	40,305	39,026	54,355
Parlier	88,216	62,387	58,904	87,510
Reedley	279,079	302,848	360,852	325,232
San Joaquin	31,468	30,456	30,228	58,890
Sanger	249,086	250,268	212,033	231,397
Selma	250,328	255,486	279,059	309,768
Subtotal Incorporated	8,912,001	8,462,652	9,196,847	8,397,253
Uninc. Coast Range	1,660	993	988	1,508
Uninc. East Valley	1,207,659	1,971,859	1,538,085	2,662,663
Uninc. Sierra Foothills	125,979	309,028	381,798	166,179
Uninc. Nevada	63,220	55,029	55,455	93,769
Uninc. West Valley	136,314	198,697	123,785	135,390
Subtotal Unincorporated	1,534,832	2,535,606	2,100,111	3,059,509
TOTAL	10,44683	10,998,258	11,296,958	11,456,762
*Includes entire sphere of influence area for incorporated cities.				
Source: DKS Associates				

TABLE 7 ESTIMATED LANE-MILES OF ROADWAY BY LEVEL OF SERVICE ALL SCENARIOS Fresno County 2020								
Area*	Scenario	Level of Service						
		A	B	C	D	E	F	TOTAL
Fresno/Clovis SOIs	A	43	1,260	263	204	170	701	2,641
	B/C	34	1,221	256	237	127	764	2,639
	D	37	1,088	246	257	153	862	2,643
	E	34	1,117	254	220	169	846	2,640
Other City SOIs	A	90	229	93	110	56	57	635
	B/C	81	219	80	90	100	67	637
	D	82	229	77	105	82	62	637
	E	79	215	73	90	103	77	637
Unincorporated	A	769	983	607	135	98	51	2,643
	B/C	609	913	637	182	173	130	2,644
	D	729	868	649	182	99	117	2,644
	E	659	850	605	187	151	192	2,644
TOTAL COUNTY	A	902	2,472	962	449	324	810	5,919
	B/C	724	2,353	974	508	400	961	5,920
	D	847	2,185	972	543	333	1,041	5,921
	E	773	2,181	931	497	423	1,115	5,920
*Includes entire sphere of influence area for incorporated cities.								
Source: DKS Associates								

TABLE 8 PERCENTAGE OF LANE-MILES OF ROADWAY BY LEVEL OF SERVICE ALL SCENARIOS Fresno County 2020								
Area*	Scenario	Level of Service						
		A	B	C	D	E	F	TOTAL
Fresno/Clovis SOIs	A	1.6%	47.7%	10.0%	7.7%	6.4%	26.6%	100%
	B/C	1.3%	46.3%	9.7%	8.9%	4.8%	29.0%	100%
	D	1.4%	41.2%	9.3%	9.7%	5.8%	32.6%	100%
	E	1.3%	42.3%	9.6%	8.3%	6.4%	32.1%	100%
Other City SOIs	A	14.2%	36.0%	14.6%	17.3%	8.9%	9.0%	100%
	B/C	12.7%	34.4%	12.6%	14.1%	15.7%	10.5%	100%
	D	12.9%	36.0%	12.1%	16.5%	12.8%	9.7%	100%
	E	12.5%	33.7%	11.4%	14.1%	16.2%	12.1%	100%
Unincorporated	A	29.1%	37.2%	23.0%	5.1%	3.7%	1.9%	100%
	B/C	23.0%	34.5%	24.1%	6.9%	6.6%	4.9%	100%
	D	27.6%	32.8%	24.6%	6.8%	3.7%	4.4%	100%
	E	24.9%	32.2%	22.9%	7.1%	5.7%	7.2%	100%
TOTAL COUNTY	A	15.2%	41.8%	16.3%	7.6%	5.4%	13.7%	100%
	B/C	12.2%	39.7%	16.5%	8.6%	6.8%	16.2%	100%
	D	14.3%	36.9%	16.4%	9.2%	5.6%	17.6%	100%
	E	13.1%	36.9%	15.7%	8.4%	7.1%	18.8%	100%
*Includes entire sphere of influence area for incorporated cities.								
Source: DKS Associates								

TABLE 9

**ESTIMATED VEHICLE-MILES TRAVELED (VMT) BY LEVEL OF SERVICE
ALL SCENARIOS
Fresno County
2020**

Area*	Scenario	Level of Service						TOTAL
		A	B	C	D	E	F	
Fresno/Clovis SOIs	A	1,496,936	4,355,845	1,764,442	1,760,676	1,660,070	9,690,634	20,728,603
	B/C	1,388,516	4,276,840	1,776,406	1,989,841	1,268,558	10,550,323	21,250,484
	D	1,569,451	3,843,731	1,737,016	2,092,012	1,517,665	11,781,997	22,541,872
	E	1,391,058	3,828,954	1,735,662	1,851,677	1,645,980	11,802,645	22,255,976
Other City SOIs	A	629,058	533,737	350,612	653,026	525,113	1,090,808	3,782,354
	B/C	676,818	523,128	350,958	554,244	864,710	1,253,302	4,223,160
	D	648,032	530,076	357,826	604,508	724,592	1,219,414	4,084,448
	E	649,926	493,840	326,739	539,480	946,830	1,417,920	4,374,735
Unincorporated	A	1,964,233	2,207,462	3,466,572	875,543	943,938	702,848	10,160,596
	B/C	2,332,444	2,227,468	3,807,162	1,057,125	1,514,052	1,804,448	12,742,699
	D	2,205,695	1,914,084	3,834,142	1,070,913	880,498	1,598,217	11,503,549
	E	2,653,667	2,086,543	3,596,519	1,144,579	1,325,491	2,802,085	13,608,884
TOTAL COUNTY	A	4,090,227	7,097,044	5,581,626	3,289,245	3,129,121	11,484,290	34,671,553
	B/C	4,397,778	7,027,436	5,934,526	3,601,210	3,647,320	13,608,073	38,216,343
	D	4,423,178	6,287,891	5,928,984	3,767,433	3,122,755	14,599,628	38,129,869
	E	4,694,651	6,409,337	5,658,920	3,535,736	3,918,301	16,022,650	40,239,595

*Includes entire sphere of influence area for incorporated cities.

Source: DKS Associates

TABLE 10

**PERCENTAGE OF VEHICLE-MILES TRAVELED (VMT) BY LEVEL OF SERVICE
ALL SCENARIOS
Fresno County
2020**

Area*	Scenario	Level of Service						TOTAL
		A	B	C	D	E	F	
Fresno/Clovis SOIs	A	7.2%	21.0%	8.5%	8.5%	8.0%	46.8%	100%
	B/C	6.5%	20.1%	8.4%	9.4%	6.0%	49.6%	100%
	D	7.0%	17.1%	7.7%	9.3%	6.7%	52.3%	100%
	E	6.3%	17.2%	7.8%	8.3%	7.4%	53.0%	100%
Other City SOIs	A	16.6%	14.1%	9.3%	17.3%	13.9%	28.8%	100%
	B/C	16.0%	12.4%	8.3%	13.1%	20.5%	29.7%	100%
	D	15.9%	13.0%	8.8%	14.8%	17.7%	29.9%	100%
	E	14.9%	11.3%	7.5%	12.3%	21.6%	32.4%	100%
Unincorporated	A	19.3%	21.7%	34.1%	8.6%	9.3%	6.9%	100%
	B/C	18.3%	17.5%	29.9%	8.3%	11.9%	14.2%	100%
	D	19.2%	16.6%	33.3%	9.3%	7.7%	13.9%	100%
	E	19.5%	15.3%	26.4%	8.4%	9.7%	20.6%	100%
TOTAL COUNTY	A	11.8%	20.5%	16.1%	9.5%	9.0%	33.1%	100%
	B/C	11.5%	18.4%	15.5%	9.4%	9.5%	35.6%	100%
	D	11.6%	16.5%	15.5%	9.9%	8.2%	38.3%	100%
	E	11.7%	15.9%	14.1%	8.8%	9.7%	39.8%	100%

*Includes entire sphere of influence area for incorporated cities.

Source: DKS Associates

These tables reveal the following:

- Scenarios B/C, D, and E would generally result in higher vehicle-miles of travel (VMT) and worse levels of service on the county's roadway system than under Scenario A.
- Scenario E would have the highest VMT and the worst levels of service for both the incorporated and the unincorporated areas.
- The estimated percentage of lane-miles in unincorporated areas operating at LOS "F" conditions would be about seven percent under Scenario E, compared to about two percent operating at LOS "F" under Scenario A.
- The worst congestion under all of the scenarios would occur in the spheres of influence of the cities of Fresno and Clovis. The percentage of lane-miles operating at LOS "F" in those cities would range from about 27 percent under Scenario A to 32 percent under Scenarios D and E. About half of the vehicle-miles traveled in those cities would be on roadways operating at LOS "F" conditions.

Planning-level cost estimates for improvements needed to "mitigate poor levels of service" were estimated for the four scenarios based on the following assumptions:

- Fresno County does not have an adopted level of service standard. Therefore, two sets of costs were prepared - one to meet a LOS "C" standard by the year 2020 and one to meet a LOS "D" standard.
- Improvement costs were estimated only for arterial roadways outside the spheres of influence of the cities in Fresno County. Separate cost estimates were made for improvements to County roadways and improvements to state highways. Improvement costs for SR 99, however, were not included.
- For this analysis, the improvements were assumed to involve only widenings or upgrades of existing roadways. Other approaches to increasing capacity such as new parallel roadways and transit improvements were not considered in this initial cost analysis.

Table 11 shows the miles of County roadway that would require widening under each of the four scenarios to achieve LOS "C" or better conditions. Scenario A would require improvements to about 49 miles of arterial roadway, while Scenario E would require improvements to 113 miles of County arterial roadway. Most of the improvements are required in the East Valley area of the county. Some roadways would need eight lanes (four in each direction) to provide LOS "C" or better conditions. Widening to eight lanes may not be an acceptable improvement, but was listed in Table 11 for analysis purposes.

Table 12 shows the miles of County roadway that would require widening to achieve LOS "D" or better conditions. Scenario A would require improvements to about 23 miles of County roadway, while Scenario E would require improvements to about 75 miles of County arterial roadway. A comparison of the improvement needs shown in Tables 11 and 12 demonstrate that achieving LOS "C" conditions in the year 2020 would require significantly greater improvements than achieving LOS "D" conditions.

Tables 13 and 14 show the improvements to state highways in the unincorporated areas of the County that would be required to achieve LOS "C" and LOS "D" conditions, respectively. For

planning-level costs estimates, it was assumed that state highways requiring more capacity than a four-lane conventional highway (or expressway) would be upgraded to a four (or six) lane freeway.

Table 15 lists the assumed planning-level costs to widen a mile of County roadway and to widen/upgrade a mile of state highway (not including right-of-way costs). Tables 16 and 17 show the resulting cost for improving County roadways to provide LOS "C" and LOS "D" conditions, respectively. Tables 18 and 19 show the costs for improving state highways (in the unincorporated areas of Fresno County) to achieve LOS "C" and LOS "D" conditions, respectively.

TABLE 11 ROADWAY IMPROVEMENTS NEEDED ON COUNTY ROADWAYS TO PROVIDE LOS C CONDITIONS IN 2020* Fresno County (In Miles)					
<i>Area</i>	<i>Assumed Lane Improvements</i>	<i>Scenario</i>			
		<i>A</i>	<i>B/C</i>	<i>D</i>	<i>E</i>
Coast Range Foothills	<i>No improvements identified</i>				
West Valley	<i>No improvements identified</i>				
East Valley	2 to 4 lanes	41.3	71.9	47.1	76.3
	2 to 6 lanes		2.7	1.0	4.2
	2 to 8 lanes				2.4
	4 to 6 lanes	2.5	6.0	5.4	13.1
	4 to 8 lanes	2.8	7.2	5.8	10.0
Sierra Foothills	2 to 4 lanes	2.8	6.5	6.5	6.5
Sierra Nevada Mountains	2 to 4 lanes		2.3	2.3	
TOTAL		49.4	96.5	68.1	112.5
* Includes only improvements to County arterial roadways outside the spheres of influence of the cities.					
Source: DKS Associates					

TABLE 12 ROADWAY IMPROVEMENTS NEEDED ON COUNTY ROADWAYS TO PROVIDE LOS D CONDITIONS IN 2020* Fresno County (In Miles)					
<i>Area</i>	<i>Assumed Lane Improvements</i>	<i>Scenario</i>			
		<i>A</i>	<i>B/C</i>	<i>D</i>	<i>E</i>
Coast Range Foothills	<i>No improvements identified</i>				
West Valley	<i>No improvements identified</i>				
	2 to 4 lanes	18.4	37.4	27.2	45.7
	2 to 6 lanes		1.1	1.0	3.5
	2 to 8 lanes				0.4
	4 to 6 lanes	3.3	8.9	8.4	18.7
East Valley	4 to 8 lanes	0.8	1.8	1.8	1.8
Sierra Foothills	2 to 4 lanes		3.5	3.5	4.7
Sierra Nevada Mountains	<i>No improvements identified</i>				
TOTAL		22.5	52.7	41.8	74.6
* Includes only improvements to County arterial roadways outside the spheres of influence of the cities.					
<i>Source: DKS Associates</i>					

TABLE 13 ROADWAY IMPROVEMENTS NEEDED ON STATE HIGHWAYS TO PROVIDE LOS C CONDITIONS IN 2020* Fresno County (In Miles)					
<i>Area</i>	<i>Assumed Lane Improvements</i>	<i>Scenario</i>			
		<i>A</i>	<i>B/C</i>	<i>D</i>	<i>E</i>
Coast Range Foothills	<i>No improvements identified</i>				
West Valley	2 to 4 lanes	7.5	10.2	10.2	10.2
	2 to 4 lanes	36.8	39.1	37.1	41.9
	4 to 4 (or 6) lane freeway	1.8	2.8	1.8	4.0
Sierra Foothills	2 to 4 lanes	0.9	10.3	8.6	10.3
Sierra Nevada Mountains	<i>No improvements identified</i>				
TOTAL		47.0	62.4	57.6	66.3
* Includes only improvements to County arterial roadways outside the spheres of influence of the cities.					
<i>Source: DKS Associates</i>					

TABLE 14

**ROADWAY IMPROVEMENTS NEEDED
ON STATE HIGHWAYS
TO PROVIDE LOS D CONDITIONS IN 2020***

**Fresno County
(In Miles)**

Area	Assumed Lane Improvements	Scenario			
		A	B/C	D	E
Coast Range Foothills	No improvements identified				
West Valley	2 to 4 lanes	0.7	5.9		0.7
East Valley	2 to 4 lanes	29.5	33.1	21.1	32.5
	4 to 4 (or 6) lane freeway	1.8	1.8	1.8	4.0
Sierra Foothills	2 to 4 lanes		8.6	8.6	8.6
Sierra Nevada Mountains	No improvements identified				
TOTAL		32.0	49.3	31.4	45.7
* Includes only improvements to County arterial roadways outside the spheres of influence of the cities.					
Source: DKS Associates					

TABLE 15

**ESTIMATED COST PER MILE
FOR ROADWAY WIDENINGS
Fresno County**

Improvement Type	Cost Range (1997 \$)*
County Roadways	
Widen 2 to 4 lanes	\$800,000 to \$1,000,000
Widen 2 to 6 lanes	\$1,300,000 to \$1,800,000
Widen 2 to 8 lanes	\$2,000,000 to \$2,400,000
Widen 4 to 6 lanes	\$700,000 to \$900,000
Widen 4 to 8 lanes	\$1,300,000 to \$1,800,000
State Highways	
Widen 2 to 4 lanes	\$3,500,000 to \$5,000,000
Upgrade 4 lane highway to 4 (or 6) lane freeway	\$15,000,000 to \$20,000,000
*Does not include right-of-way costs.	
Source: DKS Associates	

TABLE 16 ROADWAY IMPROVEMENT COSTS FOR COUNTY ROADWAYS TO PROVIDE LOS C CONDITIONS IN 2020* Fresno County (In \$ Millions)				
<i>Area</i>	<i>Scenario</i>			
	<i>A</i>	<i>B/C</i>	<i>D</i>	<i>E</i>
Coast Range Foothills	0	0	0	0
West Valley	0	0	0	0
East Valley	38.5 - 48.6	74.5 - 95.0	50.3 - 64.2	93.4 - 119.4
Sierra Foothills	2.2 - 2.8	5.2 - 6.5	5.2 - 6.5	5.2 - 6.5
Sierra Nevada Mountains	0	3.0 - 2.3	3.0 - 2.3	0
TOTAL	40.7 - 51.4	82.7 - 103.8	58.5 - 73.0	98.6 - 125.9
*Does not include right-of-way costs.				
Source: DKS Associates				

TABLE 17 ROADWAY IMPROVEMENT COSTS FOR COUNTY ROADWAYS TO PROVIDE LOS D CONDITIONS IN 2020* Fresno County (In \$ Millions)				
<i>Area</i>	<i>Scenario</i>			
	<i>A</i>	<i>B/C</i>	<i>D</i>	<i>E</i>
Coast Range Foothills	0	0	0	0
West Valley	0	0	0	0
East Valley	18.1 - 22.8	37.9 - 50.6	31.2 - 39.7	57.2 - 72.8
Sierra Foothills		2.8 - 3.5	2.8 - 3.5	3.7 - 4.7
Sierra Nevada Mountains	0	0	0	0
TOTAL	18.1 - 22.8	42.7 - 54.1	34.0 - 43.2	60.9 - 77.5
*Does not include right-of-way costs.				
Source: DKS Associates				

TABLE 18

**ROADWAY IMPROVEMENT COSTS
FOR STATE HIGHWAYS TO PROVIDE LOS C CONDITIONS
IN 2020***

**Fresno County
(In \$ Millions)**

Area	Scenario			
	A	B/C	D	E
Coast Range Foothills	0	0	0	0
West Valley	26.2 - 37.5	35.5 - 50.8	35.5 - 50.8	35.5 - 50.8
East Valley	155.8 - 220.0	179.5 - 252.2	157.0 - 221.6	206.1 - 288.7
Sierra Foothills	3.2 - 4.6	36.1 - 51.6	30.0 - 42.8	36.1 - 51.6
Sierra Nevada Mountains	0	0	0	0
TOTAL	185.2 - 262.1	251.1 - 354.6	222.5 - 315.2	277.7 - 391.1
*Does not include right-of-way costs.				
Source: DKS Associates				

TABLE 19

**ROADWAY IMPROVEMENT COSTS
FOR STATE HIGHWAYS TO PROVIDE LOS D CONDITIONS
IN 2020***

**Fresno County
(In \$ Millions)**

Area	Scenario			
	A	B/C	D	E
Coast Range Foothills	0	0	0	0
West Valley	2.5 - 3.5	20.7 - 29.6		2.5 - 3.5
East Valley	130.4 - 183.8	142.8 - 201.4	100.8 - 141.5	173.1 - 241.7
Sierra Foothills		30.0 - 42.8	30.0 - 42.8	30.0 - 42.8
Sierra Nevada Mountains	0	0	0	0
TOTAL	132.9 - 187.3	193.5 - 273.8	130.8 - 184.3	205.6 - 288.0
*Does not include right-of-way costs.				
Source: DKS Associates				

Public Transit

Increased public transit services will be needed in Fresno to help mitigate projected levels of traffic congestion. Legislative mandates, including the Americans with Disabilities Act (ADA) of 1990, the Federal Clean Air Act Amendments (FAAA) of 1990, and the California Clean Air Act (CCAA), will also give impetus to the need for public transit improvements. How and where growth takes place in Fresno County will also have an impact on transit demand and the ability of transit service to be effective and efficient.

Public transit will be most effective in the urban areas of the county that are served by Fresno Area Express (FAX) and Clovis Transit. The Fax Transit Master Plan adopted in March 1995 defines a FAX vision for public transportation in Fresno County through the year 2020. The Plan, developed in cooperation with COFCG, consists of four elements:

- Land Use Element
- Principal Transit Corridor Element
- Bus Transit Element
- Transit Support Measure Element

The City of Fresno General Plan Citizens Advisory Committee recommended that the following key elements of the FAX Transit Master Plan be included in the City of Fresno General Plan Update:

- Designated Principal Transit Corridors, Transit Corridors, and Proposed Transit Corridors
- A Land Use/Transportation Coordination Program
- A proposed Major Investment Study (MIS) during the life of the General Plan
- Language supporting the consolidation of the Union Pacific and Burlington Northern and Santa Fe Railways

Actions such as the following will also be needed in the rural areas of Fresno County to keep pace with projected levels of population and employment growth:

- Expansion of the fixed route system at a rate consistent with population growth.
- Expansion of service to improve transit's competitiveness with other modes of transportation in addressing air quality issues. Strategies should consider increased frequency of headways, longer hours of operation, and implementation of peak/off-peak service.
- Better coordination of land use and transportation planning to improve the viability of transit at least in key "transit corridors."

Opportunities for transit service can be maximized with planning aimed at concentrating higher-intensity development (residential or employment) in designated transit corridors. With most of the concentration of higher-intensity development in certain corridors, high-capacity transit service may be feasible, whereas higher intensities in scattered locations throughout the county are unlikely to support high-capacity transit services, especially light rail service. Designating "transit corridors" provides the County with guidance for developing land use and design standards in corridors to make development more accessible to transit.

Scenarios B/C, D, and E would all generate more daily person-trips in the unincorporated areas of Fresno County than Scenario A (see Table 6), thereby increasing demand for transit service. More importantly, "transit corridors" should be designated where employment can be concentrated to make transit service viable. County policies that encourage higher levels of employment in the unincorporated areas (e.g., agricultural processing) should be coupled with policies that help focus employment in corridors that could be best served by public transit.

Truck Travel

The majority of goods in Fresno County are transported by trucks (followed by rail, air, and pipeline). Fresno County has a high volume of long-distance trucking activity due to the presence of I-5 and SR 99. According to the Caltrans publication *1995 Annual Average Daily Truck Traffic on the California State Highway System*, SR 99 carries the greatest volume of truck traffic in Fresno County (between 7,800 and to 22,100 vehicles per day), where it makes up to 24 percent of the total vehicle traffic. I-5 also experiences large volumes of truck traffic (between 5,500 and 6,500 vehicles per day), which represents up to 33 percent of the total vehicle volume.

The estimated volume of trucks on a roadway is one of the principal factors used in designing the thickness of pavement and in calculating the design life of roadways. Fresno County staff typically uses an annual growth rate of two to three percent when determining the design of roadway pavement on county roads. Under Scenario A, employment in the unincorporated portions of Fresno County is expected to increase by about 80 percent between 1996 and 2020; this represents an average annual growth rate of 2.5 percent. In that time frame, employment in the county's agricultural production sectors is estimated to increase by 70 percent (or about 2.24 percent annually). This employment growth will likely mean an equivalent increase in truck travel on the county's unincorporated roadway system. This growth in truck travel will require an aggressive pavement maintenance program for the county's roadways, but appears to be consistent with the County's current pavement design practices.

Scenarios B/C, D, and E all have higher growth in employment than Scenario A, and would all result in higher levels of vehicle-miles of travel (VMT) in the unincorporated areas of Fresno County. Likewise, truck volumes would increase faster under these scenarios than under the Scenario A. This is particularly true for Scenario B/C with its shift towards agricultural production. All of these scenarios would require higher levels of roadway maintenance costs due to increased truck travel.

Rail

The projected growth in population, employment, and economic activity in Fresno County through the year 2020 will substantially increase the demand for intercity goods movement to and from the county. The movement of intercity freight is an important function of the rail system in that it provides an alternative mode for the transport of the wide variety of agricultural commodities and manufactured goods produced within the region. Rail freight shipping significantly reduces the number of trucks using major inter-regional roads such as SR 99 and I-5, thereby reducing traffic congestion, air pollution, and maintenance costs.

There are two rail mainlines that traverse Fresno County in a north-south direction. The line owned by the Burlington Northern and Santa Fe Company connects Fresno County to Sacramento and the Bay Area to the north and Bakersfield to the south. The line owned by Union Pacific also connects Fresno County to Sacramento and the Bay Area to the north and to Bakersfield to the south. Both lines include service to the city of Fresno.

The Regional Transportation Plan for Fresno County notes that one mainline railroad line would provide adequate capacity for moving freight to, from, and through Fresno County through the year 2020. Within Fresno County, there are many advantages to merging traffic of the two railroads into one corridor. At-grade traffic conflicts, which have existed for decades, would be reduced. Traffic flow improvements would reduce air pollution emissions. If all existing rail

traffic through the city of Fresno were consolidated on one line, the other line would be available for public use for high-speed passenger service or light rail transit.

Under Scenario B/C, rail use could increase substantially, as rail is used extensively to transport livestock and produce. Several existing branch lines, which have been evaluated and will likely be abandoned, may need to be reevaluated if the agricultural growth assumed in this scenario occurred in areas served by these branch lines. To ensure economic feasibility of rail service on branch lines, policies should be developed which concentrate and encourage appropriate land uses to provide a critical mass for freight rail service.

Under Scenarios D and E, employment levels in the industrial and agricultural production sectors are lower than under Scenario A, which may mean relatively less demand for freight shipments by rail.

Aviation

The service area of the Fresno Yosemite International (FYI) consists of Fresno, Kings, Madera, Mariposa, Merced and Tulare counties. These counties have a combined population of about 1.5 million. Notwithstanding the size of this population base for commercial passenger service at FYI, jet aircraft service is still not common, and passengers are not able to level load onto any of the commercial aircraft. It has become clear that passenger use of the FYI is low due to high air fares and competition from the automobile and other airports (e.g., Bay Area and Los Angeles airports).

With rapid population and employment growth expected in the region through the year 2020, commercial air services from Fresno should increase. The need for additional facilities at FYI under all four scenarios should be similar, but will depend upon market forces which are difficult to accurately forecast at this time. The current California Airport System Plan recommends consideration of an additional general utility public use airport in the Fresno/Clovis/Selma vicinity.

While Scenarios B/C, D, and E represent different levels and mixes of employment types, it is unlikely that these scenarios would result in significantly different needs for aviation facilities by 2020 than Scenario A.

4. PUBLIC FACILITIES: WATER SUPPLY, WASTEWATER, AND STORM DRAINAGE AND FLOOD CONTROL

KEY QUESTIONS

- How much water will be needed to supply projected urban growth and changing agricultural practices? Will existing groundwater supplies be adequate and will existing surface water entitlements be sufficient to supply the increased needs? What are the impacts of increased groundwater use?
- How much wastewater will be generated by projected growth? What systems will need to be expanded to accommodate these increased wastewater flows?
- How will projected growth affect storm drainage and flood control?
- What are the estimated costs of expanding water supply, wastewater, and drainage facilities to meet projected needs in the unincorporated areas of the county?

WATER SUPPLY

BACKGROUND

Groundwater and surface water in Fresno County is managed by the U.S. Bureau of Reclamation (USBR) and by a combination of public and private water agencies, including cities, water districts, and local irrigation districts, which are all governed by state and federal regulations. Fresno County uses both surface water and groundwater to meet municipal and industrial (M&I) water demands, but groundwater supplies most of the water used for M&I purposes in the county.

The San Joaquin River and the Kings River are the major sources of surface water for agricultural and M&I purposes in Fresno County. Water from both rivers is controlled upstream by a system of storage and flood control reservoirs. Both rivers are subject to extreme variations in annual runoff resulting from annual changes in mountain precipitation. Rights to San Joaquin River and Kings River water are already fully appropriated.

Another source of surface water for Fresno County is the Sacramento-San Joaquin River Delta (Delta). Surface water for agricultural and M&I water users located adjacent to and west of the Fresno Slough area is imported from the Delta. The delivery of Delta water is controlled under water service contracts and water rights exchange agreements between the water users, the State, and the USBR. Surface waters are delivered through USBR facilities. Delta water is already fully appropriated.

In Fresno County, nearly all M&I water demands are met by the exclusive use of groundwater. Currently, more than 95 percent of the county's total population is directly dependent upon groundwater for domestic and industrial purposes. In addition, groundwater also plays a significant role in sustaining the county's agricultural production.

As for the hydrogeology of Fresno County, aquifers east of the valley trough are generally semi-confined to unconfined. Aquifers west of the valley trough are generally semi-confined to confined, and water quality is often affected by naturally occurring concentrations of minerals such as sodium, chloride, boron, and trace elements such as selenium.

Surface and groundwater resources are closely related in Fresno County. Use of surface water reduces demand on groundwater supplies. Irrigation also provides a significant amount of groundwater recharge as a portion of the applied water moves below the root zone. In the eastern portion of the valley, this recharge is crucial to maintaining local groundwater supplies.

In the foothill and mountain areas in Fresno County, the availability of groundwater is limited to rock fracture, which is only a small percentage of total rock volume. Finding water can be difficult and yields are generally low. This limitation has restricted development in these areas as alternative water supplies are unavailable at this time.

On the valley floor, groundwater overdraft is widespread. Groundwater overdraft occurs when the amount of water withdrawn due to pumping exceeds the amount of water that replenishes the groundwater basin. Overdraft can result in a number of undesirable effects such as land subsidence, an increased risk of cross-contamination of aquifers as a result of well-deepening or drilling of new wells, and the spreading of groundwater contamination associated with new or expanded cones of depression. Increased groundwater pumping due to drought and growth can be expected to add to the county's current overdraft. Nearly every water agency is currently reporting overdraft conditions. While overdraft may be more pronounced in the Fresno/Clovis Metropolitan Area and in those districts without surface water entitlement, countywide overdraft is occurring. Furthermore, because most of the aquifers within the county appear to be hydraulically linked, pronounced overdraft in one area can lead to greater overdraft in other areas. As for the foothill and mountain areas, the results of existing groundwater pumping is not currently being monitored and its availability to meet future demands is, therefore, unknown.

COMPARISON OF SCENARIOS

Incorporated Areas: M&I Water Demands

While Fresno County's 15 cities use both treated surface water and groundwater, groundwater supplies most of the water used by cities. Table 1 presents 1995 surface and groundwater use and 1997 Central Valley Project (CVP) contract entitlements for cities receiving surface water.

TABLE 1			
M&I CURRENT WATER USE AND CONTRACT ENTITLEMENTS			
City	1995 Surface Water Use (acre-ft/yr)	1997 Surface Water CVP Contract (acre-ft/yr)	1995 Groundwater Use (acre-ft/yr)
Coalinga	3,579	10,000	0
Firebaugh	0		2,092
Huron	881	3,000	0
Mendota	0		1,597
Clovis	0		16,153
Fowler	0		1,117
Fresno*	145,000	60,000	130,389
Kerman	0		2,004
Kingsburg	0		2,583
Orange Cove	1,224	2,500	0
Parlier	0		1,599
Reedley	0		4,792
San Joaquin	0		568
Sanger	0		4,461
Selma	0		5,252
*Surface water is used for groundwater recharge only. 60,000 acre-ft/yr is supplied by the San Joaquin River and up to 85,000 acre-ft/yr is supplied by Kings River. Sources: California Department of Health Services 1995 Annual Reports to the Drinking Water Program; U.S. Bureau of Reclamation CVP Water Service Contracts			

While per capita water use varies by city, the average water use in cities is approximately 0.24 acre-ft/capita or 214 gpd/capita. Incremental water demand for Scenario B/C has been increased by 10 percent to account for an increase in food processing industries, which are generally heavy water users. This multiplier is used in Table 2 to estimate M&I water demand for each city using groundwater under each scenario.

TABLE 2				
PROJECTED 2020 M&I GROUNDWATER DEMAND (acre-ft/yr)				
City	Scenario A	Scenario B/C	Scenario D	Scenario E
Firebaugh	3,300	5,400	4,000	2,600
Mendota	3,300	3,900	3,100	4,300
Clovis	29,900	30,800	36,300	36,300
Fowler	2,200	2,800	3,300	1,700
Fresno	218,900	192,200	197,700	171,500
Kerman	3,600	3,800	3,600	4,900
Kingsburg	4,400	6,900	5,200	3,700
Parlier	3,600	2,500	2,400	3,500
Reedley	8,900	10,200	11,100	10,200
San Joaquin	1,300	1,400	1,300	2,600
Sanger	8,800	8,700	7,200	7,700
Selma	9,600	10,100	10,400	11,500
TOTAL	297,800	278,700	285,600	260,500
<i>Source: Montgomery Watson</i>				

As shown in Table 2, Scenario A projects the greatest M&I groundwater demand for incorporated areas. Therefore, it may have the greatest impact on groundwater conditions.

Groundwater overdraft is currently a widespread problem on the valley floor. If the cities are to grown significantly, new sources of water supply must be identified. San Joaquin River, Kings River, and Delta water is already fully appropriated. If groundwater is identified as the future source of water supply to meet projected demands, increased pumping or the installation of new wells to supplement city growth will exacerbate the existing groundwater overdraft problem. Therefore, the availability of additional sources of water supply may limit future growth in the county.

In some areas along the valley trough and in parts of western Fresno County, groundwater pumping has caused subsidence of the land surface. This typically occurs in areas where the groundwater basin is overdrafted and long-term recharge is inadequate to maintain the water table elevation. Subsidence can impact conjunctive use programs by reducing storage capacity and changing transmissivity of the aquifer. Irrigation facilities and structures can also be damaged. Subsidence has been a problem in the Westlands Water District and the Pleasant Valley Water District.

Table 3 shows the projected 2020 water use under each scenario for each city using surface water to meet M&I demands.

TABLE 3 PROJECTED 2020 M&I SURFACE WATER DEMAND (acre-ft/yr)				
<i>City</i>	<i>Scenario A</i>	<i>Scenario B/C</i>	<i>Scenario D</i>	<i>Scenario E</i>
Coalinga	5,500	4,800	4,600	4,100
Huron	2,100	2,200	1,900	3,200
Orange Cove	2,600	1,800	1,700	2,300
<i>Source: Montgomery Watson</i>				

Current Central Valley Project (CVP) water service contract entitlements for each of these cities should be evaluated to determine whether current entitlements can support projected population growth to 2020. If current appropriations are insufficient, a new source of water supply must be identified to serve growth in the future.

Unincorporated Areas: M&I Water Demands

Unincorporated areas in Fresno County are currently pumping groundwater to supply M&I water demands. Groundwater overdraft is currently a widespread problem on the valley floor. If growth is to occur in the unincorporated areas, a new source of water supply must be identified. Growth may be limited by the availability of a water source. For the purpose of this analysis, it is assumed that groundwater will supplement growth in the unincorporated areas in the West and East Valley and in the foothills and mountains. However, this may be unrealistic since countywide groundwater overdraft is already occurring and all sources of surface water are fully appropriated. The unincorporated M&I demand of 214 gpd/capita is used in Table 4 to estimate the projected incremental groundwater M&I demands from 1996 to 2020 associated with anticipated growth in the unincorporated areas of the county.

TABLE 4 PROJECTED INCREMENTAL WATER DEMAND 1996 - 2000 (acre-ft/yr)				
<i>Geographic Area</i>	<i>Scenario A</i>	<i>Scenario B/C</i>	<i>Scenario D</i>	<i>Scenario E</i>
Coast Range Foothills	50	10	10	50
West Valley	2,200	5,500	2,700	3,000
East Valley	17,400	50,900	35,400	73,400
Sierra Foothills	2,200	9,100	12,300	3,900
Sierra Nevada	1,200	900	1,000	2,800
TOTAL	23,050	66,410	51,410	83,150
<i>Source: Montgomery Watson</i>				

As shown in Table 4, Scenario E may have the greatest impact on groundwater conditions for unincorporated areas in the valley. However, Scenario D projects the greatest water demand for the foothill and mountain areas, which have limited groundwater supply due to low aquifer yields.

Increased water demands from 1996 to 2020 for Scenarios B/C, D, and E are generally higher than the demands projected for Scenario A. The higher demands of Scenarios B/C, D, and E are expected since these scenarios project higher growth than Scenario A. Scenario B/C yields higher demands in the West and East Valley area due to an increase in food processing industries, which are generally heavy water users. Water-intensive industries are assumed to be concentrated in the West and East Valley areas only. Scenario E yields high demands mainly because of the large population increase from 1996 to 2020.

As for the foothill and mountain areas, groundwater availability is limited due to geologic factors, but groundwater quality for the most part is excellent. However, increased use of individual septic systems in this area due to growth may become a potential source of contamination. This issue can be addressed by adherence to County standards for design of individual septic systems to prevent impacts of wastewater disposal.

Agricultural Water Demands

Scenario B/C assumes changes in crop patterns which result in a conversion from cotton, hay, and grain crops to fruits and vegetables. The projected changes in crop acreage were prepared by Applied Development Economics.

<i>Converted From</i>	<i>Acreage</i>	<i>Converted To</i>	<i>Acreage</i>
Cotton	172,467	Fruits	185,552
Food Grains	35,876	Tree Nuts	35,286
Feed Grains	14,629	Vegetable	123,306
Hay	17,841	Nursery Products	1,485
Pasture & Range	95,138		
Sugar Crops	9,120		
TOTAL	345,071	TOTAL	345,629

Table 5 shows the applied water for agriculture of each crop according to *California Water Plan Update Bulletin 160-93*.

TABLE 5					
ESTIMATED CHANGES IN AGRICULTURE WATER USE Fresno County					
Crop (Shift From)	(Acre-ft water/acre crop- yr)	(acre-ft/yr)	Crop (Shift To)	(acre-ft water/acre crop- yr)	(acre-ft/yr)
Cotton	3.2	551,894	Fruits	3.7	686,542
Food Grains	1.0	35,876	Tree Nuts	3.0	105,858
Feed Grains	1.0	14,629	Vegetables	2.9	357,587
Hay	1.0	17,841	Nursery	3.0	4,455
Irrigated Pasture/Range	3.0	285,414			
Sugar Crop	4.1	37,392			
TOTAL		943,046	Total		1,154,442
<i>Source: California Department of Water Resources; Montgomery Watson</i>					

Table 5 suggests there will be a net increase in applied water use between 1996 and 2020 as a result of these changes in crop patterns, even though this analysis assumes that total land in agricultural production countywide will not increase. Agricultural water demands in Fresno County are met primarily by surface water supplemented by groundwater. The exception is the area along the trough of the valley which does not have access to a reliable surface water supply. Nearly all of the agricultural areas fall within one or more water/irrigation districts which supply water for irrigation. It is important to note that all sources of surface water in the county are fully appropriated and that groundwater overdraft is a countywide problem. Therefore, shifts in crops that may result in an increase in applied water can only be possible if a new source of water supply is identified.

Cost Analysis (Unincorporated Areas Only)

The following analysis estimates capital costs for water supply improvements to accommodate growth in unincorporated areas only; growth within city spheres of influence are not covered. For the purpose of this analysis, it is assumed that the anticipated increase in M&I demand will be met through the groundwater supply. However, installing new wells in the valley areas may exacerbate existing overdraft conditions. Urbanization will increase the number of wells needed and convert lands formerly irrigated with surface water to uses dependent entirely on groundwater. Unless the surface water currently used for agriculture is made available to meet the anticipated unincorporated demands, the result is increased groundwater pumping with concurrent loss of deep percolation recharge of applied surface water. However, for the purpose of comparison between the different scenarios, some simple cost assumptions have been made. For Fresno County, the capital cost of wells including preliminary testing and chlorination is approximately \$400,000/well. The production rate of new wells is assumed to be 800 to 1,500 gpm. Production rates can vary dramatically depending on the location and hydrogeologic properties. Table 6 shows the approximate number of new wells needed and the total well costs for the projected incremental growth from 1996 to 2020. These estimates do not include costs for a new water supply, impacts from overdrafting the aquifer, or distribution piping. Note that these costs estimates serve only the purpose of comparing the various scenarios and may not reflect actual total costs.

TABLE 6 ESTIMATED GROUNDWATER WELLS CAPITAL COST INCREMENTAL DEMAND 1996 to 2020								
<i>Area</i>	<i>Scenario A</i>		<i>Scenario B/C</i>		<i>Scenario D</i>		<i>Scenario E</i>	
	<i>No. Wells</i>	<i>Cost</i>	<i>No. Wells</i>	<i>Cost</i>	<i>No. Wells</i>	<i>Cost</i>	<i>No. Wells</i>	<i>Cost</i>
West Valley	2	\$800,000	6	\$2,400,000	2	\$800,000	2	\$800,000
East Valley	14	5,600,000	42	16,800,000	30	12,000,000	60	24,000,000
TOTAL	16	\$6,400,000	48	\$19,200,000	32	\$12,800,000	62	\$24,800,000
<i>Source: Montgomery Watson</i>								

A problem associated with overdrafting the aquifer is the impact to current pumps if the groundwater levels decline further. Other economic impacts of groundwater overdraft to existing groundwater users in the county are also potentially significant. These include: higher pumping costs due to increased energy demand; drilling of new wells or deepening old wells; the need for larger, more expensive pumps; damage to existing pumps; and the necessity to treat water contaminated by the movement of poor quality water as a result of changing groundwater gradients.

As for the foothill and mountain areas, most M&I water demands are currently met by groundwater. The effects of existing groundwater pumping is not currently being monitored and is therefore unknown. Groundwater conditions should be further evaluated to determine the availability to meet future growth. In these areas, it may be necessary to drill multiple wells to significant depths to obtain a well yield that is adequate for domestic purposes. The higher costs involved may pose a significant burden on area landowners. If a new source of surface water supply is identified, water can be imported and made available through additional water storage to serve growth.

Based on the same assumptions for the unincorporated valley areas presented previously, the groundwater well capital costs for the unincorporated foothill and mountain areas are presented in Table 7.

TABLE 7 ESTIMATED GROUNDWATER WELLS CAPITAL COSTS INCREMENTAL DEMAND 1996 to 2020								
<i>Area</i>	<i>Scenario A</i>		<i>Scenario B/C</i>		<i>Scenario D</i>		<i>Scenario E</i>	
	<i>No. Wells</i>	<i>Cost</i>	<i>No. Wells</i>	<i>Cost</i>	<i>No. Wells</i>	<i>Cost</i>	<i>No. Wells</i>	<i>Cost</i>
Coast Range Foothills	1	\$400,000	1	\$400,000	1	\$400,000	1	\$400,000
Sierra Foothills	2	800,000	9	3,600,000	11	4,400,000	4	1,600,000
Sierra Nevada	1	400,000	1	400,000	1	400,000	3	1,200,000
TOTAL	4	\$1,600,000	11	\$4,400,000	13	\$5,200,000	8	\$3,200,000
<i>Source: Montgomery Watson</i>								

It should be noted that the above analysis of costs is not based on any particular assumption about the location of new growth in the unincorporated areas. Further, it is not known at this point if the surface water presently used for agricultural irrigation will be made available for M&I use as the lands currently under agricultural production are converted to non-agricultural uses. Site-specific land use conversion information along with site-specific groundwater and surface water conditions is required to determine the availability of an existing water supply within the growth areas of the unincorporated county.

WASTEWATER

BACKGROUND

Cities and special districts own and operate numerous wastewater collection systems throughout the county. All these agencies must obtain permits from the Regional Water Quality Control Board (Regional Board) to discharge treated plant effluent and dispose of biosolids. Residents in rural areas that are not served by centralized systems use on-site septic systems. Industries are required to provide treatment of their wastewater and obtain separate discharge permits from the Regional Board.

All incorporated cities within Fresno County are served by local sewage collection and treatment facilities. The majority of treated wastewater is domestic, with a small amount coming from industrial discharges. Most treatment plants provide secondary treatment, but some smaller cities still have only primary treatment facilities.

Many unincorporated communities have elected to form special districts to provide sewage collection and wastewater treatment, as well as other services. Approximately 30 of these districts provide wastewater services. The County owns and operates ten wastewater treatment facilities on behalf of water works districts and county service areas. The Regional Board actively encourages consolidation of services and increased reclamation of treated effluent as the most economical methods to achieve water quality objectives.

COMPARISON OF SCENARIOS

Incorporated Areas

While the wastewater flow per capita for each city varies greatly, the average wastewater flow per capita for all the cities is estimated to be 93 gpd/capita, based on information on current population and monitored wastewater flows. This multiplier is used in Table 8 to estimate total wastewater flows in 2020, which are compared to current treatment plant design capacities estimated for each city. The incremental wastewater flow for Scenario B/C has been increased by ten percent to account for an increase in food processing industries which are generally large volume wastewater dischargers. Cities with projected 2020 wastewater flows greater than the current wastewater facility design capacity will need to upgrade or expand the facility to accommodate anticipated flows.

TABLE 8						
MUNICIPAL WASTEWATER TREATMENT FACILITIES						
City/District	Design Capacity (mgd)	1997 Flow (mgd)	Projected 2020 Flow (mgd)			
			Scenarios			
			A	B/C	D	E
Coalinga	1.3	0.9	1.7	1.4	1.3	1.1
Firebaugh	0.5	0.8	1.3	2.1	1.6	1.0
Huron	0.3	0.3	0.8	0.8	0.7	1.3
Mendota	1.2	0.8	1.5	1.7	1.4	1.9
Fresno-Clovis	68.0	69.0	110.0	99.0	103.0	93.0
Kerman	1.2	0.81	1.4	1.5	1.4	1.9
Orange Cove	1.0	—	1.2	0.9	0.9	1.1
Parlier	2.0	0.8	1.6	1.2	1.1	1.6
Reedley	3.5	2.3	3.9	4.4	4.8	4.5
San Joaquin	0.3	0.1	0.4	0.4	0.4	0.9
Sanger	1.8	2.8	4.5	4.5	3.9	4.1
Selma-Kingsburg-Fowler	8.0	2.8	5.6	7	6.7	5.9
Source: Montgomery Watson						

Unincorporated Areas

The estimated average wastewater flow rate of 93 gpd/capita is used to estimate the incremental wastewater flows from 1996 to 2020 presented in Table 9.

TABLE 9				
PROJECTED INCREMENTAL WASTEWATER FLOWS Fresno County (mgd)				
Area	Scenario A	Scenario B/C	Scenario D	Scenario E
Coast Range Foothills	0.02	0.01	0.01	0.02
West Valley	0.9	2.2	1.1	1.2
East Valley	6.9	20.1	14	29
Sierra Foothills	0.9	3.7	5	1.6
Sierra Nevada Mountains	0.5	0.4	0.4	1.2
TOTAL	9.2	26.4	20.5	33.0
Source: Montgomery Watson				

It is assumed for this analysis that new development in unincorporated areas will occur in a fairly

compact manner in and adjacent to existing communities or in new communities. Therefore, it is assumed that increased wastewater flows associated with new growth from 1996 to 2020 will be served by new sewage collection systems and centralized wastewater treatment facilities. Rural households will still be served by septic systems regulated by Fresno County.

The projected incremental wastewater flows from 1996 to 2020 for Scenarios B/C, D, and E are, in general, higher than the flows projected for Scenario A. The higher flows of Scenarios B/C, D, and E are expected since these scenarios project higher incremental population growth than Scenario A. Scenario B/C yields higher flows in the West and East Valley areas due to an increase in food processing industries which are categorized as heavy water users with higher discharges. These water-intensive industries are assumed to be concentrated in the West and East Valley areas only. Scenario E yields high wastewater flows mainly because of the large population increase from 1996 to 2020.

For the foothill and mountain areas, there are some centralized wastewater treatment facilities for small communities, but most residents still rely on individual septic systems. If growth is to occur in these rural areas, an increase in septic systems may be a potential source of contamination to the local groundwater. However, adherence to County standards for design of individual septic systems can prevent the impacts of wastewater disposal.

Cost Analysis (Unincorporated Areas)

In order to simplify the comparison of the wastewater treatment costs for the various scenarios, it is assumed that the anticipated wastewater flows associated with incremental growth in the unincorporated county from 1996 to 2020 will be served by new sewage collection systems and centralized wastewater treatment facilities. Table 10 shows projected wastewater treatment facilities capital cost to serve the incremental flows from 1996 to 2020, which includes the treatment systems, engineering fees, and construction cost. It is assumed that wastewater flows up to five MGD cost \$5 million/MGD and flows greater than five MGD cost \$4 million/MGD. These cost estimates do not include sewage collection system costs. It is important to note that these cost estimates serve only the purpose of comparing the various scenarios; actual costs will depend upon many other factors such as location and extent of sewage collection system.

TABLE 10 ESTIMATED WASTEWATER TREATMENT FACILITY CAPITAL COSTS FOR INCREMENTAL DEVELOPMENT Fresno County 1996 to 2020				
<i>Area</i>	<i>Scenario A</i>	<i>Scenario B/C</i>	<i>Scenario D</i>	<i>Scenario E</i>
Coast Range Foothills	\$110,000	\$28,000	\$30,000	\$96,000
West Valley	4,376,000	10,839,000	5,361,000	5,881,000
East Valley	27,550,000	80,325,000	55,878,000	115,939,000
Sierra Foothills	4,605,000	18,700,000	25,186,000	7,908,000
Sierra Nevada	2,413,000	1,916,000	2,010,000	5,780,000
TOTAL	39,054,000	111,808,000	88,465,000	135,604,000
<i>Source: Montgomery Watson</i>				

STORM DRAINAGE AND FLOOD CONTROL

BACKGROUND

During winter and spring months, river and stream flows in Fresno County increase with heavy rainfall and snow-melt runoff. To prevent flooding, a wide range of storm drainage and flood control measures are utilized throughout the county. In rural areas, the management of reservoir releases, canals, and levee systems reduce the likelihood of flooding by rerouting stormwater around populated areas. In developed areas, storm drainage systems composed of street gutters, inlets, underground storm drains, basins, pumping stations, and open channels are used to collect and control stormwater runoff.

COMPARISON OF SCENARIOS

Incorporated and Unincorporated Areas

Most of Fresno County's 15 cities operate their own storm drainage and flood control systems. However, for the cities of Fresno and Clovis, storm drainage and flood control is managed by the Fresno Metropolitan Flood Control District. Many cities also rely on levee maintenance by the U.S. Army Corps of Engineers and irrigation districts to provide flood protection from certain creeks and rivers.

As new residential and non-residential (i.e., retail, office, industry, public institution) development occurs, the amount of impervious (paved) area increases. As a result, stormwater flows will increase. Therefore, flood control and storm drainage facilities must be expanded to accommodate increased flows.

The area of Fresno County between the Coast Range and Fresno Slough is sparsely populated, with the major land uses consisting of agriculture and pasture. In this area, many creeks are prone to high flows and significant erosion, but most of the area is sparsely developed, so flooding generally poses little threat to life or personal property. New development could face flooding problems if it occurs in flood-prone areas. The major facilities in this area that are subject to flooding include I-5 and the California Aqueduct. Downstream urban areas that are subject to flooding include the cities of Coalinga, Huron, and Mendota. Creeks feeding into Arroyo Pasajero flow through the city of Coalinga, creating flooding problems. Downstream, Arroyo Pasajero is prone to flooding as is the road into the city of Huron. Panoche Creek flows overland after crossing the California Aqueduct, and floods agricultural land and portions of the city of Mendota.

The valley floor of Fresno County extends eastward from the Coastal Range to the foothills of the Sierra Nevada. Most of Fresno County's population resides in the valley area. As a result, storm drainage and flood control systems are largely designed to protect urban development. The major flood issues in the valley area are associated with the San Joaquin River, Kings River, and several streams. The San Joaquin River from Gravelly Ford to the Chowchilla Bypass is confined by a levee system. Over time, encroachment of vegetation, substantial sedimentation, and land subsidence has reduced channel capacity considerably. Erosion, seepage, and prolonged high water levels compromise levee integrity. Uncontrolled flooding from the San Joaquin River between the Chowchilla Bypass and Dos Palos tends to flow into Madera County north of Mendota.

Most of the area within Fresno County extending from the foothills of the Sierra Nevada to the eastern border of the county falls within the boundaries of the National Forest, which is under the jurisdiction of the U.S. Forest Service, and is not prone to flooding.

Cost Analysis (Unincorporated Areas Only)

Each scenario has been analyzed for the capital costs of storm drainage and flood control facility improvements. The capital costs include all facilities such as pipes, pumping, basins, and also land, paving, right-of-way, engineering fees, and construction. The following general assumptions for unit capital costs were made:

Commercial (cost/acre)	\$ 10,000
Industry (cost/acre)	\$ 8,000
Residential (cost/DU)	\$ 900
Public/Institutional (cost/acre)	\$ 8,000
Other (cost/acre)	\$ 0

Table 11 shows the estimated total capital cost for storm drainage and flood control improvements to protect incremental development from 1996 to 2020 for each scenario. It is important to note that these costs estimates serve only the purpose of comparing the various scenarios. Detailed area-specific evaluations should be performed to estimate actual improvement costs.

TABLE 11 ESTIMATED STORM DRAINAGE & FLOOD CONTROL CAPITAL COSTS FOR INCREMENTAL DEVELOPMENT Fresno County 1996 to 2020				
<i>Area</i>	<i>Scenario A</i>	<i>Scenario B/C</i>	<i>Scenario D</i>	<i>Scenario E</i>
Coast Range Foothills	\$ 100,000	\$ 25,000	\$ 26,000	\$ 86,000
West Valley	3,110,000	7,000,000	3,680,000	4,170,000
East Valley	30,050,000	76,950,000	58,190,000	124,300,000
Sierra Foothills	4,060,000	15,890,000	21,200,000	6,920,000
Sierra Nevada Mtns.	1,600,000	1,200,000	1,270,000	3,810,000
TOTAL	\$ 38,920,000	\$ 101,065,000	\$ 84,366,000	\$ 139,286,000
<i>Source: Montgomery Watson</i>				

5. PUBLIC SERVICES: LAW ENFORCEMENT, FIRE PROTECTION, AND SCHOOLS

KEY QUESTIONS

- How will projected growth increase the demand for law enforcement services in terms of the need for additional personnel and possible changes in response times?
- How will projected growth increase the demand for fire protection services in terms of the need for additional personnel and possible changes in response times?
- How will projected growth increase the need for additional school facilities?

LAW ENFORCEMENT AND FIRE PROTECTION

BACKGROUND

Law enforcement services in Fresno County are provided by the Fresno County Sheriff's Department, the California Highway Patrol, and city police departments. The Fresno County Sheriff's Department currently employs a total of 329 sworn officers that serve an unincorporated population of approximately 174,500 and, through contracts with cities, an incorporated population of approximately 126,700. Information on the number of sworn officers employed by cities is not readily available.

Fire protection in the unincorporated areas of the county is provided by the Fresno County Fire Protection District (including Fig Garden Fire Protection District), North Central Fire Protection District, Orange Cove Fire Protection District, Bald Mountain Fire Protection District, Laton Community Services District, Riverdale Public Utilities District, County Service Area 31 B (Shaver Lake), and the California Department of Forestry (CDF).

The national Insurance Services Office (ISO) evaluates the fire protection services (e.g., staffing levels, response times, etc.) provided by all fire departments for the purposes of establishing rates for insurance underwriters. Under the ISO rating system on a scale of one to ten, a one is considered the best protection rating while a ten is considered the worst. For the FCFPD, the area west of SR 99 has an ISO rating of 6; the area east of SR 99, generally within the residential and industrial areas around Fresno and Clovis, has an ISO rating of 5. In areas more than five miles from a fire station, the ratings increase to between 6 to 8. The eastern foothills area has an ISO rating of 9. The remaining districts are more rural and serve much smaller areas than the FCFPD and have ISO ratings ranging from 4 to 8.

The California Department of Forestry and Fire Protection (CDF) is responsible for providing fire protection to wildlands (i.e., rural and mountain areas) designated as State Responsibility Areas (SRA), which in Fresno County encompasses is 916,303 acres.

COMPARISON OF SCENARIOS

The following assesses the potential increased demand for fire and police services based on the increase in population between 1996 and 2020 population for each scenario. Demand is expressed as the number of staff required to serve net new population. Staffing arrangements and levels vary greatly among the fire and police departments in Fresno County, so to simplify this analysis, Fresno County Sheriff's Department and Fresno County Fire Protection District's current staffing levels are used to project future staff needs countywide. While actual staffing levels would vary by city, department, or district, using countywide factors provides a general indication of the magnitude of the new demand created by each scenario, and the differences among the scenarios.

For law enforcement services, the number of officers currently employed by the Sheriff's Department (329) was divided by the approximate population (301,200) that is currently served by the Sheriff's department, resulting in a ratio of 1.09 staff per 1,000 residents. This ratio was applied to the net new county population projected for each scenario. In addition, the Federal Bureau of Investigation (FBI) standard of 2.0 officers per 1,000 residents was used to provide a range for the anticipated demand for law enforcement services.

To determine a staffing ratio for fire protection services, the current full-time and on-call staff levels (102 and 250, respectively) for the Fresno County Fire Protection District were divided by the estimated population currently served by the District (175,000). The current staffing ratios for fire protection services works out to 0.58 per 1,000 population for full-time staff and 1.43 per 1,000 population for on-call staff.

Table 1 estimates the increased staff required for projected population growth under each scenario.

TABLE 1 REQUIRED NUMBER OF NEW LAW ENFORCEMENT AND FIRE PERSONNEL BY SCENARIO Fresno County					
	Population Increase 1996 - 2020	Law Enforcement		Fire	
		Sheriff's Dept Ratio (1.09/1,000)	FBI Ratio (2/1,000)	Full-Time (0.58/1,000)	On-Call (1.43/1,000)
Scenario A	648,786	707	1,298	376	928
Scenario B/C	681,704	743	1,363	395	975
Scenario D	709,245	773	1,418	411	1,014
Scenario E	743,668	811	1,487	431	1,063
<i>Source: EIP Associates</i>					

Scenario A

Under this scenario, a majority of the population increase would occur in or near existing populated areas. Growth is slated to occur in the East Valley area, with only minimal development in more rural areas. However, even a small increase in population in the more rural, undeveloped areas would expose more people to longer wait for police protection services and would increase the number of people exposed to the risk of wildland fire. The current response time in some rural areas for fire protection services is 20 minutes. The increase in people and/or businesses locating in rural areas would put more pressure on law enforcement and fire protection services, which may in turn increase the risk of serious harm to property and residents.

Of all the scenarios, this scenario would have the least impact on fire and law enforcement services, because it has the lowest population increase.

Scenario B/C

Similar to Scenario A, Scenario B/C provides for a majority of the population growth in the East Valley area. As discussed under Scenario A, development in rural areas could lead to longer response times for both police and fire services, potentially creating more dangerous conditions for residents and property that could be damaged by fire.

Scenario D

Under Scenario D, the greatest increase in population would occur in the unincorporated area of the East Valley and in the Sierra Foothills. Development in rural, undeveloped areas, which, as discussed under the previous scenarios, could be subject to longer response times for both police and fire services.

Scenario E

Similar to Scenario A, a majority of the population growth under this scenario is slated to occur in more populated areas in the East Valley. The increase in residents in the more rural areas is less than under Scenario D. However, overall, this scenario would require the largest increase in personnel because it has the largest population increase.

Summary Comparison

The primary difference among the four scenarios is the number of the people and property in the county that could be exposed to increased risks due to wildland fires hazards and longer police and fire response times. Under Scenarios A, B/C, and E, most development would occur in more developed areas in the East Valley; however, under Scenario E, development would also occur in the unincorporated East Valley, on the fringes of developed areas. Under Scenario D, a majority of new development would occur in rural areas in the unincorporated East Valley and in the Sierra Foothills.

Fire safety and law enforcement protection could be compromised in more rural areas due to low density development and lack of direct access to rural development. In addition, the risk of wildland fires would be greater in more rural areas; however, the total number of people and amount of property that would be exposed to increased fire hazards would be relatively small

compared to development anticipated in the East or West Valley. Under all the scenarios, however, most of the growth would occur in urban areas where adequate law enforcement and fire services exist and access is generally not an issue.

SCHOOLS

BACKGROUND

There are currently 35 public school districts in Fresno County. Sixteen of these are unified districts that provide educational services for kindergarten through grade 12. The remaining 19 districts consist of 16 elementary school districts and three high school districts. Many of the districts are located in rural areas and have only one or two schools.

The county currently has a population of 761,832, of which approximately 172,180 attend school (K-12). Of this population, approximately 98,312 attend elementary school, 26,004 attend middle school, and 47,864 attend high school.

COMPARISON OF SCENARIOS

In order to estimate the number of new school facilities needed under each scenario, the current percentage of school children in the entire population was applied to the net new population projected for each scenario. (A countywide set of student generation rates (students per household) is not available.) Based on existing conditions, the following percentages were used:

Elementary	12.9 percent
Middle School	3.4 percent
High School	6.3 percent
 Total School Children	 22.6 percent

The number of schools that would be required by the increased student population was determined by dividing the number of students by the State's recommended school size, as shown below:

Elementary	600 students
Middle School	900 students
High School	1,500 students

It should be noted that student generation rates vary by school district, and that the need for new school facilities would also vary according to the distribution of students, district policy, and other factors. Nonetheless, the approach used in this analysis indicates the general magnitude of growth in the student population that could be anticipated countywide, and the differences among scenarios in demand for school facilities. Table 2 estimates the new students generated by the four scenarios and the additional school facilities required.

TABLE 2 INCREASE IN STUDENTS AND ADDITIONAL SCHOOL FACILITIES REQUIRED Fresno County 1996 - 2020								
	<i>Population Increase 1996 - 2020</i>	<i>Elementary (K-6)</i>		<i>Middle School (7-8)</i>		<i>High School (9-12)</i>		<i>TOTAL STUDENTS</i>
		<i>Students</i>	<i>Schools</i>	<i>Students</i>	<i>Schools</i>	<i>Students</i>	<i>School</i>	
Scenario A	648,786	83,693	140	22,059	25	40,874	27	146,626
Scenario B/C	681,704	87,940	147	23,178	26	42,947	29	154,065
Scenario D	709,245	91,493	152	24,114	27	44,682	30	160,289
Scenario E	743,668	95,933	160	25,285	28	46,851	31	168,069
<i>Source: EIP Associates</i>								

Summary Comparison

As shown in Table 2, Scenario E proposes the greatest increase in population, which in turn would result in the largest number of new school children. The number of new students generated under Scenarios A and E would differ by 21,500, or approximately 15 percent. The primary difference among scenarios is where new development is projected to occur. Planning for new school facilities may be easier in more densely populated areas due to economies of scale and smaller service areas (geographically) to serve the maximum number of students per school. In rural areas, students may need to travel long distances to school, or be housed in facilities that are smaller than urban schools, and, therefore, may be more expensive on a per-student basis. Under Scenarios A, B/C, and D, the majority of new development is proposed in the more developed and populated East Valley. Under Scenario D, a higher proportion of new development would occur in more rural areas where more limited services currently exist. This could result in higher infrastructure costs required to develop new schools.

TABLE 1 FRESNO COUNTY GENERAL PLAN 1990-2010			
Category	1990	2000	2010
Population	450,000	550,000	650,000
Employment	200,000	250,000	300,000
Households	150,000	180,000	210,000
Motor Vehicles	1,000,000	1,200,000	1,400,000
Commercial Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Industrial Space	2,000,000 sq. ft.	2,500,000 sq. ft.	3,000,000 sq. ft.
Office Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Residential Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Public Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Health Care Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Education Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Government Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Arts and Culture Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Recreation Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Food and Beverage Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Retail Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Service Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Manufacturing Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Warehouse Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Logistics Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Energy Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Water Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Waste Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Telecommunications Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Information Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Health Care Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Education Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Government Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Arts and Culture Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Recreation Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Food and Beverage Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Retail Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Service Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Manufacturing Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Warehouse Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Logistics Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Energy Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Water Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Waste Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Telecommunications Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.
Information Space	1,000,000 sq. ft.	1,200,000 sq. ft.	1,400,000 sq. ft.

The following table provides a summary of the projected growth in Fresno County from 1990 to 2010. The data is based on the Fresno County General Plan 1990-2010. The table shows the projected population, employment, households, motor vehicles, and various types of space (commercial, industrial, office, residential, public, health care, education, government, arts and culture, recreation, food and beverage, retail, service, manufacturing, warehouse, logistics, energy, water, waste, telecommunications, and information) for the years 1990, 2000, and 2010. The data indicates a significant increase in all categories over the 20-year period, with population projected to grow from 450,000 in 1990 to 650,000 in 2010, and motor vehicles projected to grow from 1,000,000 in 1990 to 1,400,000 in 2010. The table also shows a projected increase in the amount of space required for various purposes, such as commercial space (1,000,000 sq. ft. in 1990 to 1,400,000 sq. ft. in 2010) and industrial space (2,000,000 sq. ft. in 1990 to 3,000,000 sq. ft. in 2010).

The following table provides a summary of the projected growth in Fresno County from 1990 to 2010. The data is based on the Fresno County General Plan 1990-2010. The table shows the projected population, employment, households, motor vehicles, and various types of space (commercial, industrial, office, residential, public, health care, education, government, arts and culture, recreation, food and beverage, retail, service, manufacturing, warehouse, logistics, energy, water, waste, telecommunications, and information) for the years 1990, 2000, and 2010. The data indicates a significant increase in all categories over the 20-year period, with population projected to grow from 450,000 in 1990 to 650,000 in 2010, and motor vehicles projected to grow from 1,000,000 in 1990 to 1,400,000 in 2010. The table also shows a projected increase in the amount of space required for various purposes, such as commercial space (1,000,000 sq. ft. in 1990 to 1,400,000 sq. ft. in 2010) and industrial space (2,000,000 sq. ft. in 1990 to 3,000,000 sq. ft. in 2010).

6. NATURAL RESOURCES: BIOLOGICAL RESOURCES AND AIR QUALITY

KEY QUESTIONS

- Would new development result in substantial loss of flora and fauna in the county?
- Would new development reduce the numbers or habitat of special-status species?
- Would new development result in new violations of federal or state air quality standards or exacerbate existing violations?

BIOLOGICAL RESOURCES

BACKGROUND

The four scenarios could affect biological resources in very different ways depending on whether new development would convert or significantly alter agricultural lands or natural habitat areas. The following analysis assumes that, with the exception of Fresno, Clovis, and Coalinga, development within city spheres of influence would primarily convert agricultural lands. As Fresno and Clovis grow to the northeast, areas of remaining vernal pool habitat could be affected. As Coalinga grows, the habitat of Inner Coast Range special-status species could be affected. The following analysis assumes that new development in unincorporated areas outside city spheres of influence would have an equal chance of converting areas of natural habitat or converting agricultural lands, but focuses primarily on impact on natural habitat areas. To the extent that a scenario is more likely to affect natural habitats or grazing land, it is considered a more "significant" impact on biological resources than the conversion of actively cultivated agricultural lands.

Each of the five geographic areas in Fresno County has a unique combination of habitats and special-status species. There is, nonetheless, some overlap of sensitive biological resources among the five geographic areas, such as between the Coast Range Foothills and the West Valley areas and in the East and West Valley areas. The Sierra Foothills and Sierra Nevada Mountains have particularly unique biological resources.

Development in the West Valley and Coast Range Foothill areas could affect the San Joaquin kit fox, the kangaroo rat, and the blunt-nosed leopard lizard. Development in the lowlands of the West Valley and East Valley areas could affect the giant garter snake, riparian habitat, and alkaline wetland special-status species. Development on the eastern side of the East Valley area could affect remaining vernal pools and the special-status species supported by the seasonally-ponded environment. Development in the Sierra Foothills could affect many species of raptors, special-status plants associated with serpentine soils, and corridors for migratory wildlife. Development in the Sierra Nevada Mountains area could affect raptors and large forest carnivores as habitat is reduced or human encroachment proceeds in the forested areas.

COMPARISON OF SCENARIOS

Scenario A

The majority of new development under Scenario A would occur in Fresno, Clovis, and the unincorporated areas of both the East and West Valley. New development under this scenario is very likely to impact areas of remaining natural habitat. Because the scenarios do not identify specific patterns and locations of new development, it cannot be assumed that all of the acreage indicated for new development would affect natural habitat areas. Combined development in Fresno, Clovis, and the unincorporated East and West Valleys accounts for 77 percent of the total growth for Scenario A, representing a large potential for adversely affecting biological resources. Scenario A has a significantly higher proportion of projected development in unincorporated East Valley than Scenarios B/C and D, but less than Scenario E, representing a greater potential for affecting areas of natural habitats.

Sanger and Reedley SOIs lie near the Kings River which supports a corridor of riparian habitat. Relative to the total development projected for Scenario A, this represents only a small portion (approximately five percent). However, given the overall loss of riparian habitat in California, the value of any remaining riparian areas is quite high. Therefore, loss or degradation of the riparian corridor along the Kings River would be a significant concern.

Projected development in the Sierra Foothills, Sierra Nevada Mountains, and Coast Range Foothills areas makes up less than four percent of the total development in Scenario A. Growth in these areas would almost certainly alter areas of natural habitat, but site-specific analysis would be required to determine the significance of the impacts.

Scenario B/C

Scenario B/C has slightly more projected development than Scenario A, but less projected development than Scenarios D and E. Compared to Scenario A, Scenario B/C has slightly less projected development in the East Valley but significantly higher development totals for the Sierra Foothills and unincorporated West Valley. The Sierra Foothills and unincorporated West Valley have more valuable and diverse biological habitats, so their development could affect more natural habitats and special-status species than in other areas. Scenario B/C has a greater potential to negatively affect biological resources than Scenarios A and E, but less than Scenario D.

Scenario D

Scenario D provides for increased development in the Sierra Foothills and the Clovis areas relative to Scenarios A and B/C, while providing for less development in Fresno and the West Valley. However, Scenario D provides for more development in the Sierra Foothills than any of the other scenarios. Scenario D represents 15 percent less development than Scenario E, with the primary difference in development in the unincorporated East Valley. Therefore, Scenario D would be more likely to affect important biological resources than Scenarios A and B/C, but less than Scenario E (with the exception of Sierra Foothill impacts).

Scenario E

Scenario E projects the highest total development of all the scenarios by 13 to 18 percent. The increase shows up primarily in the unincorporated East Valley and the Sierra Nevada Mountain area. Growth in these two areas has the highest potential for converting natural habitats and would likely have a greater effect on biological resources than the other scenarios. Scenario E development in the Sierra Foothills resembles Scenario A in acreage, with Scenarios B/C and D showing more than twice as many acres of projected development in the foothills. Therefore, Scenario E would be less likely to affect biological resources in the foothills than Scenarios B/C and D.

Summary Comparison

In looking at the general distribution of potential new development and the possible impacts on natural lands, the percentage of natural land that would be converted relative to total projected development would be similar for all four scenarios. Most of proposed development under all scenarios is in the East Valley area, with 88 to 91 percent of the relative total for each scenario. For the Fresno, Clovis, and unincorporated East and West Valley areas, Scenarios A and E have a 77 percent relative proportion, and Scenarios B/C and D have a 75 percent relative proportion. This represents a total acreage range of 52,243 to 63,470 acres. Scenarios A and E propose the greatest acreage for development in the unincorporated East Valley, which has the greatest potential for conversion of natural habitats (approximately 5,000 to 10,000 more acres than Scenarios B/C and D).

For the Reedley and Sanger areas along the Kings River, proportional development under the four scenarios is five, six, seven, and seven percent for Scenarios A through E, respectively. This is an acreage range of 3,340 to 5,437 acres. The potential for impacts on riparian habitat are relatively the same for each scenario.

Development in the Sierra Nevada Foothills and Sierra Nevada Mountains for all the scenarios represents a relatively small share of the projected growth (one to five percent). It is reasonable to assume that any growth in these areas would be converting natural habitats, which have the potential for significant impacts on biological resources. Scenarios A and E have the least overall percentage of growth in these areas (three percent) and Scenarios B/C and D have the highest (six percent) of the total. The amount of development projected for the Coast Range Foothills is relatively insignificant.

AIR QUALITY

BACKGROUND

Sources

Emissions from mobile sources, especially on-road motor vehicles, are a major contributor to overall emissions of reactive organic gases (ROG), nitrogen oxides (NO_x) and carbon monoxide (CO) within Fresno County and the entire San Joaquin Valley Air Basin (SJVAB). In addition, motor vehicle travel contributes to the entrainment of dust from roadways, an important source of small-diameter particulate matter (e.g., PM₁₀).

Population growth under all the scenarios would increase the average number of daily home-based and work-based motor vehicle trips within the county. Increased population and employment would also increase the average daily number of other types of motor vehicle trips (e.g., customer trips to retail businesses). Assuming that the average length of these vehicle trips is similar to the average length of vehicle trips today, the total number of vehicle miles traveled per day (VMT) along county roadways would increase accordingly. (In fact, such factors as jobs/housing balance and geographic relationships between residential and shopping areas can influence average trip lengths and, thus, the relationship between trip generation and VMT.)

Increased VMT can increase air pollutant emissions in two basic ways. First, for a given rate of exhaust emissions per vehicle per mile, VMT increase would increase total vehicular emissions. Second, this increase in VMT translates into an increase in traffic flow along roadways throughout the county. If the capacity of these roadways is not increased or alternative forms of transportation provided, this increased traffic flow could lead to increased traffic congestion, which would lead to an increased rate of vehicle exhaust emissions per mile traveled.

While increased VMT and increased congestion would both tend to increase average daily air pollutant emissions from motor vehicle trips throughout the county, these effects are expected to be offset to some extent by substantial reductions in the average rate of emissions from motor vehicles traveling county roadways in future years, particularly for carbon monoxide. This reduction would result from a continuing phasing out of vehicles from earlier model years, when vehicle emission requirements were more permissive than they are today or may be in the future.

Federal, state, and regional regulations all address the relationship between VMT growth and air pollution impacts. The San Joaquin Valley Unified Air Pollution Control District's Ozone Attainment Demonstration Plan was designed to respond to the requirements of both the Federal Clean Air Act (FCAA) (as amended through 1990) and the California Clean Air Act (CCAA). According to this plan, the CCAA requires areas such as the San Joaquin Valley, which are designated as "severe nonattainment" with respect to the State ozone standard, to achieve a "substantial reduction in the rate of increase in passenger vehicle trips and miles traveled." At the time the plan was prepared, the California Air Resources Board (CARB) defined "substantial reduction" in two ways:

- Reducing the rate of growth in VMT by 50 percent below the average annual VMT growth rate experienced in the 1980s.
- Holding growth in VMT and trips to the same growth rate as population.

The plan projected attainment of the previous Federal ozone standard by 1999, but did not predict the year in which the State ozone standard would be attained. Furthermore, the newly adopted Federal ozone standard is expected to lead to new planning requirements for the SJVAB. While it is possible that the State standard (and the newly-adopted Federal standard) will be attained well before the 2020 horizon year of the new Fresno County General Plan, these VMT growth rate targets represent relevant benchmarks for evaluating the consistency of economic and growth scenarios with SJVUAPCD strategies for attainment of the State standard. As discussed below, projected VMT under all scenarios would slightly exceed both of the criteria listed above.

There are also other mobile sources of air pollutants (e.g., aircraft, trains, boats, and off-road vehicles) that contribute to air quality problems in Fresno County and throughout the San Joaquin Valley Air Basin (SJVAB). It is reasonable to assume that any of the economic and growth scenarios could result in increases in the operations of these other sources. For instance, increased population and employment would generally be expected to increase the demand for air travel, and increased agricultural production would likely increase the demand for truck and rail transport and require increases in the use of mobile agricultural equipment.

The CARB's 1995 emissions inventory for Fresno County indicates that for each of the major criteria air pollutants total emissions from "other" mobile sources are substantially lower than those from on-road motor vehicles. However, as increasingly more stringent emissions controls for on-road motor vehicles continue to reduce emissions, the "other mobile sources" category may become relatively more important. This is particularly true for nitrogen oxides (NO_x), one of the precursors to ozone, and for small-diameter particulate matter (e.g., PM_{10} or $\text{PM}_{2.5}$), which are emitted in relatively high quantities by diesel engines that are used for trains and in most mobile equipment used for agriculture, construction, and industrial applications.

In certain cases, future changes in operations of one category of transportation source may influence the volume of emissions from another transportation source category. For instance, for those goods that can be transported by either rail or heavy truck, increased transport via rail relative to trucks may result in a net reduction of emissions. Likewise, any improvements in public transit capabilities and operations--whether buses or light rail--could reduce the average daily number of automobile trips and corresponding VMT within the county.

Emissions from stationary source processes such as commercial/industrial fuel combustion, waste disposal, cleaning and surface coatings, petroleum production and marketing, and miscellaneous industrial processes contribute substantially to overall emissions of ROG and NO_x within Fresno County and the entire San Joaquin Valley Air Basin. All the economic and growth scenarios expand industrial development. Depending on the specific types of industrial processes that are associated with this development, the scenarios could result in substantial increases in stationary air pollutant emissions.

In addition to fugitive road dust, areawide emissions sources within the county include farming operations, construction/demolition, and residential fuel combustion (i.e., wood burning). These sources are of greatest concern with respect to particulate emissions (and for wood burning, CO). Currently, farming operations are estimated to contribute substantially more to PM_{10} emissions within the county and the SJVAB than construction/demolition activities and residential wood burning.

An increase in the extent or intensity of farming operations is anticipated under all the scenarios. Furthermore, each of the scenarios would involve continued construction activity. Changes in residential wood burning would most likely correspond to changes in the number of residential units (particularly single-family) located in cooler parts of the county, such as the Sierra Nevada Mountains and, to a lesser extent, the Sierra Foothills and Coast Range Foothills. However, the effect of such increases in wood burning on countywide wood burning emissions would be tempered by the current and future availability of low-emission wood-burning appliances.

Receptors

Receptors are simply individuals who are vulnerable to a particular impact, or, more generally, land uses where such individuals tend to locate or in which such individuals tend to be performing activities that make them more vulnerable to the impact of concern. People most sensitive to air pollution impacts include the young and elderly, other people with respiratory diseases, and those that are exercising vigorously. Land uses that tend to concentrate such individuals include schools, hospitals, and nursing homes. Under all of the economic and growth scenarios, increases in total population would be expected to increase proportionally the segment of the population most vulnerable to air quality impacts, while development of public/institutional land uses would include land uses where such people would most likely concentrate.

Under each scenario, a substantial portion of projected countywide population growth and public/institutional development would occur within the Fresno/Clovis spheres of influence (SOIs), where the greatest traffic congestion impacts are expected to occur and, therefore, where the potential for locally-elevated concentrations of air pollutants (e.g., CO) would be greatest. However, as mentioned previously, anticipated reductions in exhaust emission rates for air pollutants are expected to offset somewhat future increases in traffic volumes and congestion, reducing the severity of localized air pollution impacts.

COMPARISON OF SCENARIOS

Scenario A

Countywide average daily trip generation under Scenario A is projected to be about 10½ million, while projected VMT is expected to be just under 35 million. More than half of the total trip generation and VMT (about 7½ million and 20½ million, respectively) would occur within the Fresno/Clovis Metropolitan Area. The countywide VMT projection is about 115 percent above the existing (1995) VMT estimate of about 16 million, a higher growth rate than the corresponding 89 percent increase in population. Furthermore, the average annual growth rate of about 3.1 percent is more than half as large as the approximately 4.8 percent average annual growth rate for the SJVAB as a whole during the 1980s. Therefore, the projected VMT increase is slightly above CARB guidelines in the SJVUAPCD's Ozone Attainment Demonstration Plan. However, as mentioned previously, if the SJVAB continues to make progress toward achieving ozone standards, the emphasis on constraining VMT growth may diminish.

Assuming only those roadway improvements contained in the 2016 Regional Transportation Plan (RTP) prepared by the Council of Fresno County Governments (COFCG), the amount of this VMT affected by the worst traffic congestion--level of service (LOS) F--would be about 11½ million. The amount of this VMT affected by moderate to high traffic congestion--LOS D through F--would be about 18 million. As shown in Table 9 in the Transportation and Circulation working paper, congestion impacts are skewed even more towards the Fresno/Clovis SOIs where about 84 percent of county VMT exposed to LOS F and about 73 percent of county VMT exposed to LOS D through F would occur.

Scenario A is projected to add about 28 million square feet of gross floor area of industrial development, the land use category most likely to have stationary emission sources.

A total of 61,000 gross acres of new development is anticipated under Scenario A. Construction associated with this development would generate fugitive dust impacts. In addition, new single-family residential development would total about 284 acres in the Sierra Nevada Mountains, about 800 acres in the Sierra Foothills and about 17 acres in the Coast Range Foothills. The additional residential development in these areas of the county, in particular, could lead to additional use of wood-burning appliances. However, wood burning emissions would remain a relatively small component of countywide emissions of particulate matter and CO because vehicle use and industrial stationary sources are far more prevalent.

The 89 percent increase in population under Scenario A would result in an increase in the number of individuals exposed to air pollution within the county. Under this scenario, about 16½ million square feet (gross floor area) of public/institutional development would occur, potentially including schools, hospitals, and nursing homes.

About 37 percent of countywide population growth under Scenario A would occur in the Fresno/Clovis SOIs. The portion of this increased population that is particularly sensitive to air pollution could be exposed to locally-elevated levels of pollutants (e.g., CO) due to the particularly high traffic volumes and congestion in this area. However, as mentioned previously, anticipated reductions in exhaust emission rates for air pollutants are expected to counteract future increases in traffic volumes and congestion, reducing the severity of localized air pollution impacts.

Scenario B/C

Total countywide average daily trip generation under Scenario B/C is projected to be about 11 million, or about five percent higher than under Scenario A. Projected countywide VMT under this scenario is expected to be about 38 million, or about 10 percent higher than under Scenario A. All else being equal, the higher total VMT would lead to greater mobile-source emissions relative to Scenario A. Again, more than half of the total trip generation and VMT (about 6½ million and 21½ million, respectively) would occur within the Fresno/Clovis SOIs. The countywide VMT projection is about 135 percent above the existing (1995) VMT estimate of about 16 million, representing a higher growth rate than the corresponding 85 percent increase in population. Furthermore, the average annual growth rate of about 3.5 percent is more than half as large as the approximately 4.8 percent average annual growth rate for the SJVAB as a whole during the 1980s. Therefore, the projected VMT increase exceeds CARB guidelines in the SJVUAPCD's Ozone Attainment Demonstration Plan. However, as mentioned previously, if the SJVAB continues to make progress toward achieving ozone standards, the emphasis on constraining VMT growth may diminish.

Assuming only those roadway improvements contained in the COFCG's 2016 RTP, the amount of this VMT affected by the worst traffic congestion--level of service (LOS) F--would be about 13½ million. The amount of this VMT affected by moderate to high traffic congestion--LOS D through F--would be about 21 million. These amounts are about 18 and 17 percent higher, respectively, than the corresponding totals under Scenario A. This means that, relative to Scenario A, more vehicle miles would be traveled under conditions that tend to increase the rate of air pollutant emissions. Again, congestion impacts are skewed even more towards the Fresno/Clovis SOIs, where about 78 percent of county VMT exposed to LOS F and about 66 percent of county VMT exposed to LOS D through F would occur (see Table 9 in the Transportation and Circulation working paper).

Scenario B/C is projected to add about 89½ million square feet of gross floor area of industrial development, the land use category most likely to have stationary emission sources. Since this exceeds projected industrial growth under Scenario A by about 173 percent, stationary-source emissions would also be expected to be higher than those under Scenario A.

A total of 68,000 gross acres of new development is anticipated under Scenario B/C, about six percent more than under Scenario A. Therefore, a slightly higher rate of construction-related fugitive dust impacts might occur under this scenario relative to Scenario A. In addition, new residential development would total about 226 acres in the Sierra Nevada Mountains, about 3,146 acres in the Sierra Foothills and about four acres in the Coast Range Foothills. The total acreage of residential development in these areas would be about 44 percent greater than under Scenario A. Residential development in the area likely to generate the highest rate of usage of wood burning appliances—the Sierra Nevada Mountains—would be 20 percent lower under this scenario.

The 85 percent increase in population under Scenario B/C would result in an increase in the number of individuals exposed to air pollution within the county. Under this scenario, about 20½ million total square feet (gross floor area) of public/institutional development would occur, potentially including schools, hospitals, and nursing homes. These countywide development totals are slightly lower than those that would occur under Scenario A.

About 41 percent of countywide population growth under Scenario B/C would occur in the Fresno/Clovis SOIs where congestion-related local air pollutant “hot spots” would be most likely to occur, a slightly greater proportion than the 37 percent under Scenario A.

Scenario D

Total countywide average daily trip generation under Scenario D is projected to be about 11¼ million, or about eight percent higher than under Scenario A. Projected countywide VMT under this scenario is expected to be about 38 million, or about 10 percent higher than under Scenario A. All else being equal, the higher total VMT would lead to greater mobile-source emissions relative to Scenario A. Again, more than half of the total trip generation and VMT (about 7½ million and 22½ million, respectively) would occur within the Fresno/Clovis SOIs. The countywide VMT projection is about 135 percent above the existing (1995) VMT estimate of about 16 million, representing a slightly higher growth rate than the corresponding 88 percent increase in population. Furthermore, the average annual growth rate of about 3.5 percent is more than half as large as the approximately 4.8 percent average annual growth rate for the SJVAB as a whole during the 1980s. Therefore, the projected VMT increase is slightly above CARB guidelines in the SJVUAPCD's Ozone Attainment Demonstration Plan. However, as mentioned previously, if the SJVAB continues to make progress toward achieving ozone standards, the emphasis on constraining VMT growth may diminish.

Assuming only those roadway improvements contained in the COFCG's 2016 RTP, the amount of this VMT affected by the worst traffic congestion—level of service (LOS) F—would be about 15 million. The amount of this VMT affected by moderate to high traffic congestion—LOS D through F—would be about 21½ million. These amounts are about 27 and 20 percent higher, respectively, than the corresponding totals under Scenario A. This means that, relative to Scenario A, more vehicle miles will be traveled under conditions that tend to increase the rate of air pollutant emissions. Again, congestion impacts are skewed even more towards the Fresno/Clovis SOIs, where about 81 percent of county VMT exposed to LOS F and about 72 percent of county VMT

exposed to LOS D through F would occur (see Table 9 in the Transportation and Circulation working paper).

Scenario D is projected to add about 69 million square feet of gross floor area associated with industrial development, the land use category most likely to be associated with major stationary noise sources. This exceeds projected industrial growth under Scenario A by about 146 percent -- therefore, stationary-source emissions would also be expected to be higher than those under Scenario A.

A total of 71,000 gross acres of new development is anticipated under Scenario D, about 16 percent more than under Scenario A. Construction associated with this development would generate fugitive dust impacts. In addition, new residential development would total about 237 acres in the Sierra Nevada Mountains, about 4,237 acres in the Sierra Foothills, and about five acres in the Coast Range Foothills. The total acreage of residential development in these areas would be about four times greater than under Scenario A. However, residential development in the Sierra Nevada Mountains—the area likely to generate the highest rate of use of wood-burning appliances would be 20 percent lower under Scenario D than under Scenario A.

The 88 percent increase in population under Scenario D would result in an increase in the number of individuals exposed to air pollution within the county. Under this scenario, about 25½ million total square feet (gross floor area) of public/institutional development would occur, potentially including schools, hospitals, and nursing homes. These countywide development totals are comparable to or slightly higher than those that would occur under Scenario A.

About 44 percent of countywide population growth under Scenario D would occur in the Fresno/Clovis SOIs where congestion-related local air pollutant “hot spots” would be most likely to occur, a greater proportion than the 37 percent under Scenario A.

Scenario E

Total countywide average daily trip generation under Scenario E is projected to be about 11½ million, or about 10 percent higher than under Scenario A. Projected countywide VMT under this scenario is expected to be about 40¼ million, or about 16 percent higher than under Scenario A. All else being equal, the higher total VMT would lead to greater mobile-source emissions relative to Scenario A. Again, more than half of the total trip generation and VMT (about 6½ million and 22¼ million, respectively) would occur within the Fresno/Clovis SOIs. The countywide VMT projection is about 150 percent above the existing (1995) VMT estimate of about 16 million, representing a slightly higher growth rate than the corresponding 104 percent increase in population. Furthermore, the average annual growth rate of about 3.7 percent is more than half as large as the approximately 4.8 percent average annual growth rate for the SJVAB as a whole during the 1980s. Therefore, the projected VMT increase is slightly above CARB guidelines in the SJVUAPCD's Ozone Attainment Demonstration Plan. However, as mentioned previously, if the SJVAB continues to make progress toward achieving ozone standards, the emphasis on constraining VMT growth may diminish.

Assuming only those roadway improvements contained in the COFCG's 2016 RTP, the amount of this VMT affected by the worst traffic congestion--level of service (LOS) F--would be about 16 million. The amount of this VMT affected by moderate to high traffic congestion--LOS D through F--would be about 23½ million. These amounts are about 40 and 31 percent higher, respectively,

than the corresponding totals under Scenario A. This means that, relative to Scenario A, more vehicle miles will be traveled under conditions that tend to increase the rate of air pollutant emissions. Again, congestion impacts are skewed even more towards the Fresno/Clovis SOIs, where about 74 percent of county VMT exposed to LOS F and about 65 percent of county VMT exposed to LOS D through F would occur (see Table 9 in the Transportation and Circulation analysis).

Scenario E is projected to add about 48 million square feet of gross floor area of industrial development, the land use category most likely to have stationary emission sources. This exceeds projected industrial growth under Scenario A by about 51 percent. Therefore, stationary-source emissions would also be expected to be higher than those under Scenario A.

A total of 73,000 gross acres of new development is anticipated under Scenario E, about six percent more than under Scenario A. Construction associated with this development would generate fugitive dust impacts. In addition, new residential development would total about 700 acres in the Sierra Nevada Mountains, about 1,330 acres in the Sierra Foothills and about 15 acres in the Coast Range Foothills. These totals are about double those projected under Scenario A. Pollutant emissions related to residential wood-burning would be slightly lower under this scenario.

The 104 percent increase in population under Scenario E would result in an increase in the number of individuals exposed to air pollution within the county. Under this scenario, about 25½ million total square feet (gross floor area) of public/institutional development would occur, potentially including schools, hospitals, and nursing homes. These countywide development totals are about 18 to 20 percent higher than those that would occur under Scenario A.

As with Scenario A, about 37 percent of countywide population growth under Scenario E would occur in the Fresno/Clovis SOIs where congestion-related local air pollutant "hot spots" would be most likely to occur.

7. SAFETY

KEY QUESTIONS

- How would new development contribute to increased exposure of people and property to hazards, such as earthquakes, groundshaking, flooding, wildland and urban fires, air accidents, and hazardous materials?

BACKGROUND

In planning for development and resource management, a wide range of environmental hazards must be considered. Some of these hazards are human-made, and some are due to natural environmental factors. Much of the risk associated with environmental hazards can be greatly reduced, or even eliminated, through proper siting of development. However, where development is proposed in a potentially hazardous area, mitigation of potential hazards through design and administrative controls can reduce risks to life and property.

Several active and potentially-active faults have been identified in Fresno County. Two active faults, located near Coalinga and Panoche in the West Valley have been formally designated by the State as Alquist-Priolo Earthquake Fault Zones (EFZ). No structure for human occupancy may be built within an EFZ until geologic investigations demonstrate that the site is free of fault traces that are likely to rupture with surface displacement. Because of the county's seismic setting and record of historical activity, groundshaking is the primary seismic hazard in Fresno County, particularly near active and potentially active faults. Most of the currently urbanized areas in the East and West Valleys and Sierra Nevada Foothills are subject to less intense seismic effects than areas in the Coast Range Foothills and Sierra Nevada Mountains, which are closer to earthquake faults.

Areas of fracturing and steep slopes with inadequate groundcover in the foothills and mountain areas are prone to landsliding. Additionally, there is a potential for small slides and slumping along steep banks of rivers and creeks in the East and West Valley areas.

Flooding potential is concentrated primarily along the San Joaquin and Kings Rivers and smaller perennial streams in the Sierra Foothills. Friant and Pine Flat Dams, upstream reservoirs, and stormwater detention/retention facilities operated by the Fresno-Clovis Metropolitan Flood Control District minimize flooding problems in urbanized areas in the valley. However, Federal Emergency Management Agency (FEMA) maps depicting the 100-year floodplain for the San Joaquin River probably understate the true extent and risk of flooding due to obstruction of river channels by vegetation and development in the floodplains.

Urban and wildland fire hazards in Fresno County create the potential for injury, loss of life, and property damage. Urban fires primarily involve the uncontrolled burning of residential, commercial, or industrial structures due to human activities. Wildland fires primarily affect grass, forest, and brushlands, but can spread into developed areas as well, particularly as new development encroaches further on these wildland areas. Insurance Services Office (ISO) ratings, which rate fire protection services from 1 (best) to 10 (worst), range from 4 to 9 in Fresno County.

The better ratings generally occur west of SR 99, with ratings of 6 to 8 occurring east of SR 99, and a rating of 9 assigned to the eastern foothill area. Response times range from two to seven minutes in urban areas. In the rural areas, response times tend to be longer, generally five to ten minutes. For the Fresno County Fire Protection District, standard response time in rural areas is approximately 20 minutes.

As required by federal and state law, air safety zones have been established around each airport in the county to restrict the type and intensity of development that may occur in each zone. Criteria for land uses adjacent to the airports have been adopted by the County and affected cities.

Hazardous materials or consumer products containing hazardous materials are used in industries, businesses, public and private institutions, and households in Fresno County. These activities also produce hazardous waste. Waste oil comprises approximately one-third of industrial hazardous waste generated in Fresno County. Nonhalogenated solvents, pesticides, polychlorinated biphenyls (PCBs) and dioxins, and nonhalogenated organic sludges and solids account for slightly less. The majority of hazardous waste-generating businesses are located in the Fresno-Clovis Metropolitan Area.

Several sites in Fresno County are under federal or state agency oversight for soil or groundwater contamination. Four sites have been included on the Federal National Priorities List (NPL). Soil and groundwater contamination is primarily the result of industrial operations such as mining, chemical manufacturing, processing, recycling, wood treatment, agricultural chemicals application, and aircraft servicing. Most of the contaminated sites are located in the Fresno-Clovis Metropolitan Area. Approximately 400 leaking underground fuel storage tank sites have also been identified throughout the county. Nearly all of the leaking tanks contain gasoline or diesel products. Developed land uses situated adjacent to or near unknown or unidentified contamination could expose occupants to unhealthy substances. Once contaminated soil or groundwater is discovered, state, federal, and county laws and regulations should ensure that appropriate actions are taken to reduce potential hazards. Such actions include removing the source(s) of contamination and/or reducing the levels of contaminants in groundwater or soil through various methods.

COMPARISON OF SCENARIOS

Scenario A

Under Scenario A, the population of the county would grow by 89 percent, primarily in the East Valley. In addition, Scenario A would result in increased industrial and commercial development, which would add to the use of hazardous materials. Scenario A would increase the number of people who could be exposed to potential safety hazards. However, existing laws and regulations require that most of the identified hazards be avoided or minimized. For example, new construction must comply with state building codes and standards for seismic safety, and development within the 100-year floodplain must comply with specific siting and design standards to minimize potential risks due to flooding. Air safety zones have been established to regulate the type of development that occur near airports. The transportation, storage, manufacture, and use of hazardous materials and disposal of hazardous waste is regulated by federal, state, and local government agencies in order to minimize the risk of exposure to these materials.

Although any increase in development would subject more people and property to safety hazards throughout the county, development in certain areas could expose more people and property to

hazards due to fault rupture, flooding, and wildland fire. While there is no evidence of fault rupture and no EFZs have been designated in the East Valley, special development standards associated with Alquist-Priolo EFZ requirements would be necessary for any development in areas near Coalinga or Panoche that are within the EFZs. This would minimize potential adverse effects on people and property due to fault rupture.

Most of the development under Scenario A would occur in the Fresno-Clovis Metropolitan Area, in which a number of flood control management strategies have already been implemented. Many areas in the West Valley are also subject to intense flooding. Increased development in existing, urbanized flood-prone areas could increase the risk and extent of property damage and injury in those areas. Development and implementation of policies designed to more accurately define flood-prone areas throughout the county and to identify site-specific siting and design criteria for development as well as flood control features would help reduce the potential effects of flooding on existing as well as future development.

Under Scenario A, there would be a small population increase in rural, undeveloped areas, the foothills or forested areas, which would expose a greater number of people to the risk of wildland fire. Since the average response time for emergency calls outside of urban areas can be as long as 20 minutes, new development in sparsely populated areas in the outer response time zones are at greater risk than development in urban areas.

Scenario B/C

Under this scenario there would be an 85 percent increase in the county's population. As in Scenario A, most of the new development under this scenario would occur in areas for which hazards related to seismic activity or other geologic conditions, flooding, airport safety, and contaminated sites have already been identified. While there would be more people exposed to such hazards compared to existing conditions, there would be no significant differences in the types or sources of hazards. Wildland fire hazards would be limited primarily to the foothills and mountain areas, where less than five percent of projected population growth would occur. Scenario B/C would provide for a significant increase in new industrial space resulting from value-added agricultural business activity and employment, which would increase the amount of hazardous materials used and hazardous waste generated by agricultural-related chemicals and products compared to existing conditions.

Again, existing laws and regulations require that identified hazards be avoided or minimized through a variety of methods, including, but not limited to siting studies, site investigations and remedial activities (if necessary), and compliance with construction and design standards.

Scenario D

Under this scenario, the county's population would increase by approximately 88 percent. As in Scenario A, most of the growth would occur in areas for which hazards related to seismic activity or other geologic conditions, flooding, airport safety, and contaminated sites have already been identified. While there would be more people exposed to such hazards compared to existing conditions, there would be no significant differences in the types or sources of hazards. Wildland fire hazards would be limited primarily to the foothills and mountain areas, where less than five percent of projected population growth would occur.

Scenario E

Under this scenario, the county's population would approximately double. Minimal development would occur in the foothills and mountain areas. As in Scenario A, most of the growth would occur in areas for which hazards related to seismic activity or other geologic conditions, flooding, airport safety, and contaminated sites have already been identified. While there would be more people exposed to such hazards compared to existing conditions, there would be no significant differences in the types or sources of hazards. Wildland fire hazards would be limited primarily to the foothills and mountain areas, where less than five percent of projected growth would occur. Scenario E would include a substantial increase in new services, which, depending on the types of services, could increase the use of products containing hazardous materials and hazardous waste generated (e.g., paints and solvents, vehicle and aircraft fuels and maintenance products, items used in health care, cleaning products, etc.).

Summary Comparison

The primary difference among the scenarios would be the number of people in the county who could be exposed to hazardous conditions. Scenario E would result in the largest population increase, thus exposing the greatest number of people to potential hazards associated with ground shaking, flooding, air safety hazards, hazardous materials use, or contaminated sites as compared to Scenarios A through D. It is not any more or less likely that development would occur in a floodplain, on a fault, or near other hazards under Scenarios B/C through E than would be expected under Scenarios A.

Hazardous materials use and waste generation, primarily agricultural chemicals, would likely be greatest under Scenario B/ C. The effect of this on waste disposal facilities could be greater than in other scenarios, but fewer people would be exposed to hazards associated with such activities as compared to Scenarios D and E because of the smaller increase in population. New construction and growth in commercial and retail service industries associated with each scenario would increase the use of hazardous materials or the generation of hazardous wastes. With the exception of potential increases in the amount of agricultural chemicals used in the county under Scenario B/C, growth under none of the scenarios would likely add new types of industry that use hazardous materials and generate hazardous waste different than those that already exist in the county.

Wildland fire hazard potential would be greatest under Scenarios D and E, since these scenarios would result in greater population increases in foothills and mountain areas.

The general magnitude of increased exposure of population to safety hazards would be relatively similar among all the scenarios, since most of the new development would occur in and adjacent to urbanized areas in the East and West Valleys. For development under any scenario, existing laws and regulations require that identified hazards be avoided or minimized through a variety of methods, including, but not limited to siting studies, site investigations and remedial activities (if necessary), and compliance with construction and design standards.

8. FISCAL IMPACT ANALYSIS

KEY QUESTIONS

- How will growth affect the County's fiscal condition, especially the County's general fund?
- Will there be a significant revenue shortfall that could adversely affect County service levels?

BACKGROUND

Fiscal impact analysis compares the expected costs of providing services to various types of land uses to the likely revenues those land uses will generate. In order to estimate fiscal impacts, a computer fiscal model was developed for the General Plan Update. The model was used to evaluate the fiscal impacts of the four economic and growth scenarios on County (but not city) finances, and will be used later in the General Plan Update process to evaluate the Draft General Plan.

The fiscal model looks at annual costs in various County budget categories and compares them to annual revenues expected from all sources. The model is designed to make projections through the year 2020. The fiscal impact analysis focuses primarily on the County "general fund" because it is by far the largest County fund and because it holds most of the discretionary revenues received by the County.

A key consideration in the fiscal analysis is "net county costs" (NCC). Fresno County calculates NCC in its budget when making decisions affecting the allocation of monies. These are the costs to the County of providing a service above any revenues that may be forthcoming and earmarked specially for the service. For example, the County's cost of providing AFDC family services in the base year was about \$187 million. Most of that was offset by intergovernmental transfers. However, about \$2 million was not covered by those revenues and had to come from other sources of discretionary funds, which reflects a new cost to the County (i.e., Net County Cost). The calculation of NCC is important because it reflects how discretionary funds are allocated. The model estimates future NCC by assuming the percentage of each line item in the base year accounted for as NCC will remain the same into the future. For example, if two percent of a service is calculated by the County as NCC, then the model assumes that two percent of any future total cost of that service will also be NCC. Thus, the NCC increases overall in terms of absolute numbers, but remains a constant percentage of the total budget.

Fiscal impact analysis has its inherent limitations. The actual relationship between new development and the County's future revenues and expenditures is far more complex than can be expressed in a spreadsheet. Fiscal models necessarily simplify real-life complexity. Furthermore, any projection requires assumptions about what the future will really be like. In the case of fiscal impacts, the number of such assumptions is large. Consider that projecting property taxes involves, at the very least, assumptions about the pace of development, the type and valuation of

such development, the likely turn-over rate for different kinds of land uses, real estate appreciation rates, and inflation rates. Therefore, results of fiscal analysis should be considered with the understanding that they are contingent on assumptions entered into the spreadsheets. It is worth noting, too, that (in general) small changes in most assumptions usually do not have significant effects on long-term trends or on the relative ranking of the economic and growth scenarios.

A critical assumption in the fiscal model is that the kinds of responsibilities presently borne by counties and the methods of funding them (that is, the way local governments generate revenue and/or receive funds from the State) will essentially be the same into the future. For the short-term especially, this is a reasonable assumption. However, local government funding authority and conditions are volatile and, therefore, unpredictable. Thus, the further into the future one projects, the more questionable this key assumption becomes. Fiscal models are limited in their ability to predict more than a few years in the future.

Considering all these qualifications, a fiscal model is better for comparing alternatives and looking at trends than for predicting precise numbers.

It should also be kept in mind that fiscal impacts are just one of many important considerations in planning communities. For example, affordable housing appears to be a fiscal "loser" under today's tax system compared to single family market rate housing, but is an essential element of a balanced community. An objective of good planning is to find a reasonable, appropriate balance of land uses that can also provide sufficient monies to local governments to pay for desired facilities and services.

The economic and growth scenarios assign future development to the unincorporated territory, including the spheres of influence of the various incorporated cities. In the latter case, the scenarios (and, thus, the fiscal model) assume that growth in the spheres will occur with annexation. To that extent, the model differentiates between the impacts of new development in unincorporated territory and the impacts of new development in incorporated territory. However, it does not assess the effects of future development within city spheres of influence except as it affects countywide services such as health services and the judicial system; the impacts of growth on municipal city services are not considered in this analysis. Again, the model is intended to look at trends and to compare the County economic and growth scenarios, rather than predicting precise numbers.

COMPARISON OF SCENARIOS

General Fund

Using numerous assumptions (as detailed in a separate report submitted to the County on the methodology used in developing the fiscal model), the fiscal model was used to estimate future costs and revenues in the general fund, as summarized in Tables 1 through 4. The model calculates these costs and revenues on an annual basis; however, only the years 2000, 2010, and 2020 are reported in this analysis to better illustrate the results and to simplify the presentation of data. Note that adding the numbers in some columns in the tables may not exactly equal the total due to rounding.

TABLE 1
GENERAL FUND FISCAL ASSESSMENT
SCENARIO A
(All Figures in Millions of 1996 Dollars)

<i>Costs</i>			
	<i>2000</i>	<i>2010</i>	<i>2020</i>
Health Services	181.3	242.7	304.1
Human Services	419.2	565.3	711.3
Land Use and Development Services	43.6	51.9	60.1
Administration and Fiscal Services	32.3	43.9	55.5
Internal Services	17.1	22.6	28.0
Justice Services (also includes sheriff)	157.9	207.2	256.5
Roads	39.0	42.0	45.0
Total Costs	890.4	1,175.6	1,460.5
<i>Revenues</i>			
Property Tax	59.0	77.1	97.5
Sales Tax	10.0	13.6	15.9
Other Taxes	0.2	0.3	0.4
Licenses, Permits and Franchises	6.0	7.9	9.7
Fines, Forfeitures and Penalties	5.0	6.5	8.1
Use of Money and Property	8.9	11.6	14.3
Intergovernmental – State	310.6	418.3	526.0
Intergovernmental – Federal	219.5	295.7	371.8
Intergovernmental – Other	3.0	4.0	5.0
Charges for Services	57.8	75.9	94.0
Miscellaneous	35.0	47.1	59.1
Other	121.2	134.5	147.9
Teeter Bill and Crime Watch	8.9	11.7	14.6
Gas Tax	41.1	50.9	60.7
Total Revenues	886.2	1,155.1	1,425.0
NET REVENUES	-4.2	-20.5	-35.5
NET REVENUES AS A PERCENT OF TOTAL	0%	-2%	-2%
Note: Columns may not sum due to rounding.			
Source: CMCA			

TABLE 2 GENERAL FUND FISCAL ASSESSMENT SCENARIO B/C (All Figures in Millions of 1996 Dollars)			
Costs			
	2000	2010	2020
Health Services	182.4	249.3	316.3
Human Services	420.7	574.2	727.6
Land Use and Development Services	45.2	61.4	77.6
Administrative and Fiscal Services	32.7	46.1	59.5
Internal Services	17.3	24.1	30.8
Justice Services (also includes sheriff)	162.7	236.2	309.7
Roads	41.0	50.0	59.0
Total Costs	902.0	1,241.	1,580.5
Revenues			
Property Tax	59.7	80.2	103.4
Sales Tax	10.8	18.4	25.3
Other Taxes	0.2	0.3	0.4
Licenses, Permits and Franchises	6.6	10.7	14.9
Fines, Forfeitures and Penalties	5.0	6.7	8.4
Use of Money and Property	9.0	12.1	15.3
Intergovernmental -- State	310.7	423.9	537.1
Intergovernmental -- Federal	219.6	299.6	379.6
Intergovernmental -- Other	3.0	4.0	5.1
Charges for Services	58.6	80.5	102.4
Miscellaneous	35.0	47.8	60.5
Other	124.9	152.6	180.2
Teeter Bill and Crime Watch	8.9	12.0	15.0
Gas Tax	45.7	71.6	97.6
Total Revenues	897.7	1,220.	1,545.2
NET REVENUES	-4.3	-20.9	-35.3
NET REVENUES AS A PERCENT OF TOTAL	0%	-2%	-2%
Note: Columns may not sum due to rounding.			
Source: CMCA			

TABLE 3 GENERAL FUND FISCAL ASSESSMENT SCENARIO D (All Figures in Millions of 1996 Dollars)			
<i>Costs</i>			
	<i>2000</i>	<i>2010</i>	<i>2020</i>
Health Services	182.9	252.6	322.2
Human Services	421.9	581.6	741.2
Land Use and Development Services	44.8	58.5	72.3
Administrative and Fiscal Services	32.7	46.3	60.0
Internal Services	17.3	24.0	30.7
Justice Services (also includes sheriff)	161.0	226.1	291.2
Roads	40.0	48.0	55.0
Total Costs	900.6	1,237.1	1,572.6
<i>Revenues</i>			
Property Tax	59.9	80.8	104.5
Sales Tax	10.6	17.3	23.1
Other Taxes	.2	.3	.4
Licenses, Permits and Franchises	6.4	9.6	12.9
Fines, Forfeitures and Penalties	5.0	6.8	8.5
Use of Money and Property	9.0	12.0	15.2
Intergovernmental – State	312.1	429.8	547.6
Intergovernmental – Federal	220.6	303.8	387.0
Intergovernmental – Other	3.0	4.1	5.2
Charges for Services	58.4	79.7	101.0
Miscellaneous	35.2	48.4	61.7
Other	122.8	143.1	163.5
Teeter Bill and Crime Watch	8.9	12.1	15.3
Gas Tax	44.5	66.3	88.1
Total Revenues	896.5	1,214.1	1,534.0
NET REVENUES	-4.1	-23.0	-38.6
NET REVENUES AS A PERCENT OF TOTAL	0%	-2%	-3%
Note: Columns may not sum due to rounding. Source: CMCA			

TABLE 4
GENERAL FUND FISCAL ASSESSMENT
SCENARIO E
(All Figures in Millions of 1996 Dollars)

<i>Costs</i>			
	<i>2000</i>	<i>2010</i>	<i>2020</i>
Health Services	183.3	255.1	326.8
Human Services	423.5	590.9	758.3
Land Use and Development Services	46.0	66.0	85.9
Administrative and Fiscal Services	33.0	47.6	62.3
Internal Services	17.5	25.0	32.5
Justice Services (also includes sheriff)	165.1	250.4	335.8
Roads	42.0	55.0	67.0
Total Costs	910.4	1,290.0	1,668.6
<i>Revenues</i>			
Property Tax	59.8	77.8	98.4
Sales Tax	11.3	21.2	30.9
Other Taxes	0.2	0.3	0.4
Licenses, Permits and Franchises	6.8	12.0	17.2
Fines, Forfeitures and Penalties	5.0	6.9	8.8
Use of Money and Property	9.0	12.5	16.1
Intergovernmental -- State	312.3	435.8	559.3
Intergovernmental -- Federal	220.8	308.0	395.3
Intergovernmental -- Other	3.0	4.2	5.3
Charges for Services	59.1	83.6	108.0
Miscellaneous	35.2	49.1	63.0
Other	125.8	158.6	191.2
Teeter Bill and Crime Watch	8.9	12.3	15.7
Gas Tax	48.2	83.2	118.3
Total Revenues	905.4	1,265.5	1,627.9
NET REVENUES	-5.0	-24.5	-40.7
NET REVENUES AS A PERCENT OF TOTAL	0%	-2%	-3%
Note: columns may not sum due to rounding.			
Source: CMCA			

Table 5 summarizes the results more simply:

TABLE 5 SUMMARY OF GENERAL FUND COMPARISONS (All Figures in Millions of 1996 Dollars)			
	2000	2010	2020
<i>Costs</i>			
Scenario A	890.4	1,175.6	1,460.5
Scenario B/C	902.0	1,241.3	1,580.5
Scenario D	900.6	1,237.1	1,572.6
Scenario E	910.4	1,290.0	1,668.6
<i>Revenues</i>			
Scenario A	886.2	1,151.1	1,425.0
Scenario B/C	897.7	1,220.0	1,545.2
Scenario D	896.5	1,214.1	1,534.0
Scenario E	905.4	1,265.5	1,627.9
<i>Net Revenues</i>			
Scenario A	-4.2	-20.5	-35.5
Scenario B/C	-4.3	-20.9	-35.3
Scenario D	-4.1	-23.0	-38.6
Scenario E	-5.0	-24.5	-40.7
<i>Net Revenues as a Percentage of Total</i>			
Scenario A	0%	-2%	-2%
Scenario B/C	0%	-2%	-2%
Scenario D	0%	-2%	-3%
Scenario E	0%	-2%	-3%
<i>Source: CMCA</i>			

Tables 1 through 5 show there is little difference in terms of fiscal impacts among the scenarios. In all cases, costs are projected to exceed revenues by small amounts. However, in no case does the shortfall exceed about three percent of the projected budget. Given the large number of assumptions built into the model and the degree of uncertainty in projecting more than a few years into the future, these small differences should not be considered significant. The best interpretation of these results is that, regardless of which scenario is selected, the County will about "break even" in terms of fiscal impacts. One possible explanation for this result is the negotiated MOUs between the cities and the County regarding tax sharing arrangements for areas annexed to cities. A later phase in the General Plan Update program will include a more refined analysis of the costs and revenues associated with the preferred scenario and the Draft General Plan.

Net County Costs

The model also projects net county costs (NCC) on an annual basis for various expenditure categories, focusing on the costs associated with providing “municipal services” to unincorporated areas and the costs associated with the provision of countywide services. Table 6 summarizes what those total costs would be in 2020. It should be noted that while the absolute numbers are rough estimates that could change significantly over time (no model can accurately predict absolute numbers so far into the future), the numbers do illustrate the magnitude of NCC in the future, and are useful in comparing the economic and growth scenarios.

TABLE 6				
NET COUNTY COSTS AT 2020				
(All Figures in 1996 Dollars)				
	<i>Scenario A</i>	<i>Scenario B/C</i>	<i>Scenario D</i>	<i>Scenario E</i>
Net County Costs in 2020	\$317,300,000	\$360,200,000	\$351,100,000	\$387,800,000
NCC as Percent of Total Budget	22%	23%	23%	24%
NCC per Capita	\$225	\$250	\$239	\$258
<i>Source: CMCA</i>				

NCC are significant because they determine how discretionary revenues will be allocated. Therefore, an important issue is whether discretionary monies will be able to keep pace with NCC over time. The model assumes that NCC percentage of each line item remains the same into the future. Thus, there is no growth in terms of percentage increase between the years 2000 and 2020. By comparison, taxes (which comprise key elements of the County’s discretionary revenue) actually increase as a percentage of the overall County revenue stream. This suggests that discretionary revenues should be able to keep pace with NCC.

Special Revenue Funds

The model assumes that special revenue (this includes courts, library, redevelopment, and several other funds) funds will grow over time in step with overall county population growth. If any of these funds does not keep pace, then corresponding reductions in levels of service would result. As in other cases, no model can accurately predict how these funds will actually perform far into the future. However, Table 7 shows how much these funds would generate if 2020 development levels were to occur today.

TABLE 7 SPECIAL REVENUE FUNDS ANNUAL SPECIAL REVENUE AT 2020 (All Figures in Millions of 1996 Dollars)				
	<i>Scenario</i>			
<i>Special Fund</i>	<i>A</i>	<i>B/C</i>	<i>D</i>	<i>E</i>
Health and Welfare Trust Fund	91.5	109.5	104.9	111.2
California Healthcare for Indigents	4.9	5.9	5.7	6.0
Emergency Medical Services	1.3	1.5	1.5	1.5
Library	5.9	7.0	6.7	7.1
Library Grants	.3	.4	.4	.4
San Joaquin Valley Library System	2.4	2.9	2.7	2.9
Community Redevelopment	.1	.2	.2	.2
Fish and Game Propagation	.2	.3	.2	.3
Off-Highway Licenses	.5	.6	.6	.6
Fresno County Courts	23.7	28.4	27.1	28.8
Central Valley Municipal Court	5.1	6.1	5.8	6.2
Trial Court Misc Expenditures	.3	.4	.4	.4
<i>Source: CMCA</i>				

All scenarios are, of course, similar and, given the uncertainty in these kinds of long-term projections, the differences among them should not be considered significant.

Enterprise Funds

Enterprise funds relate to services that are intended to be self-funding (to the extent possible). The model projects costs of these services into the future and assumes that rates and related revenues will be raised to keep pace with these costs. This is a reasonable assumption for the long term; however, there may be short-term and intermittent shortfalls if rates are not increased to cover costs, or if beneficiaries are not required (or able) to bear their share of costs. As in other cases, projections 20 years into the future are speculative in terms of absolute numbers. However, Table 8 is useful in looking at the likely order of magnitude of continuing these services in the future, as well as for comparison among the economic and growth scenarios.

TABLE 8 ENTERPRISE FUNDS ANNUAL COSTS AT 2020 (All Figures in Millions of 1996 Dollars)				
	<i>Scenario</i>			
<i>Enterprise Funds</i>	<i>A</i>	<i>B/C</i>	<i>D</i>	<i>E</i>
Ambulatory Care	3.2	3.9	3.7	4.2
Ambulatory Care Equipment	.2	.2	.2	.2
Southeast Regional Disposal Site	.7	.8	.7	.8
Fresno/Clovis Metro Solid Waste	<.1	<.1	<.1	<.1
Shaver Lake Transfer Station	<.1	<.1	<.1	<.1
American Ave Disposal Site	11.6	13.1	12.2	13.6
Coalinga Disposal Site	.9	1.0	.9	1.0
Off-Highway License	.5	.6	.6	.6
Court Ancillary Services	.6	.7	.7	.8
Fresno County Courts	23.7	28.3	27.2	31.0
Central Valley Municipal Court	5.1	6.1	5.8	6.6
Trial Court Misc Expenditures	.3	.4	.4	.4
<i>Source: CMCA</i>				

This information suggests that the differences among the scenarios are not significant. These differences are linked to the future population projected in each scenario. Scenario A, which has the lowest total population, will be the least expensive to serve, which is reflected in the cost projections. On the other hand, Scenario E has the highest total population and, thus, is projected to generate higher costs. However, as enterprise funds, revenues from beneficiaries should also increase or decrease with total population so that the net effect is not significant.

Finally, it should be noted that Table 8 does not include costs for the Valley Medical Center. The County has entered into a 30-year agreement with Community Hospitals of Central California (CHCC) to operate Valley Medical Center. In 1996, the County established a transition fund for costs associated with implementing the contract. The transition is anticipated to be completed by the end of June 1998.

The agreement requires an annual County contribution of \$17.5 million to cover the cost of medical care for indigents. This amount is annually adjusted by a medical cost inflation factor. The County anticipates this contribution will be covered by so-called realignment funds, which are state subventions for indigent care derived from sales and vehicle license taxes. During the past year, state realignment revenues increased faster than medical cost inflation. However, if this trend reverses, the County's General Fund may be required to make up any shortfall in realignment revenues.

Perhaps of greater concern to the County's General Fund are potential legislative changes to indigent care requirements. Changes to the definition of indigent, for example, may significantly change the service population for which the County is fiscally responsible. Such changes are difficult to predict, and in any event, are largely independent of land use issues.

9. INFRASTRUCTURE FINANCING

KEY QUESTIONS

- What are the combined estimated backbone infrastructure costs (i.e., capital costs for new transportation, water, wastewater, and drainage facilities) for the unincorporated county area?
- Is it feasible for the various types of development, (i.e., residential, commercial, etc.) to bear their proportional costs for expanded backbone infrastructure?

BACKGROUND

Existing Conditions

Infrastructure funding is an ever-increasing challenge to all counties in California, including Fresno. Post-Proposition 13 revenue limitations, combined with drastic reductions in state and federal funding, have left Fresno County with few resources to keep up with the growing need for backbone infrastructure such as transportation, water, wastewater, and drainage facilities. Throughout California, there is also a lack of regional planning and cooperation in implementing funding programs for major capital improvements. The County has no legal authority to levy impact fees within incorporated areas, even though there may be impacts on County-owned and -maintained facilities from new development within the cities. Although current law relating to joint powers authorities makes it possible for two or more public agencies to band together to jointly finance major improvements, this type of regional organization is rare.

Fresno County currently levies and collects impact fees for a variety of public facilities. Most fees are collected when a building permit is issued for new development. Impact fees provide funding for public infrastructure on a "pay-as-you-go-basis," which is not always sufficient to keep up with the demands of new development. For example, a new subdivision may require installation of water or sewer facilities prior to homes being built. To generate up-front revenues, either the developer must secure institutional funding or a financing district (i.e., assessment or Mello-Roos district) must be formed to facilitate the issuance of municipal bonds.

In the mid-1980's, the Fresno County Board of Supervisors adopted a policy regarding the use of public financing for private development projects. This policy has been reviewed and revised over the years as County staff updated the Board on new state and federal regulations applicable to public financing. In July 1996, as a result of continued expansion of these regulations and concerns over risks to the County associated with public financing, the Board imposed a two-year moratorium on applications for new public financing districts. An exception was allowed for six development proposals that were already "in the pipeline" when the moratorium was approved. In September 1997, the Board further codified their position on public financing by approving a resolution terminating the use of public financing for residential projects except for those "pipeline" projects identified when the original moratorium was put in place.

Facility Cost Allocation

The infrastructure analysis in this section focuses on the capital costs for new and expanded facilities for transportation, water, wastewater, and storm drainage. Costs for jails, parks, fire stations, and other facilities are not discussed directly in this analysis. The infrastructure financing analysis in this section also focuses only on those areas that are assumed to remain unincorporated through 2020 (i.e., areas outside city spheres of influence). Due to the varied terrain within each of the five geographic areas that make up the county, infrastructure requirements and costs will be different for each area. The discussions of transportation, water, and wastewater facility costs consider the specific challenges of each geographic area; storm drainage costs are determined using a more general, "average cost" approach. The transportation cost estimates do not include state highway improvement costs, a portion of which may be funded by new development in the county. State highway improvement costs are substantial, ranging from a low of \$223.7 million to a high of \$334.5 million to achieve a level of service (LOS) "C" and ranging from a low of \$157.6 million to a high of \$246.8 million to reach LOS "D". Funding of state highway improvements is discussed further below.

Once a preferred economic and growth scenario has been selected for the County General Plan Update, more precise facility costs will be developed for each geographic area. *Again, only the costs of infrastructure required to serve unincorporated areas is included in this analysis.* Infrastructure costs for each scenario, based on the information provided in working papers on transportation and infrastructure earlier in this report, are shown in Table 1.

TABLE 1				
SUMMARY OF BACKBONE INFRASTRUCTURE COSTS				
Facility Category	Scenario A	Scenario B/C	Scenario D	Scenario E
Transportation, LOS C ^{1,2}	\$31,050,000	\$93,250,000	\$65,750,000	\$112,300,000
Transportation, LOS D ^{1,2}	\$20,450,000	\$47,400,000	\$38,600,000	\$69,200,000
Water ³	\$8,000,000	\$23,600,000	\$18,000,000	\$28,000,000
Wastewater	\$39,050,500	\$111,807,500	\$88,463,100	\$135,603,700
Storm Drainage	\$38,921,400	\$101,043,400	\$84,361,400	\$139,289,300
Total Costs (w/ LOS C)	\$117,021,900	\$329,700,900	\$256,574,500	\$415,193,000
Total Costs (w/ LOS D)	\$106,421,900	\$283,850,900	\$229,424,500	\$372,093,000
¹ The transportation costs are derived by taking the average of the high estimate and the low estimate in each scenario.				
² Transportation cost estimates do not include state highway improvements, a portion of which may be funded by new development in the county.				
³ Includes only the cost of wells, not costs associated with storage and conveyance.				
Sources: J. Laurence Mintier & Associates, Montgomery Watson, DKS, and David Taussig & Associates				

In analyzing each scenario, the total cost of each facility was allocated to land use categories by applying an appropriate "benefit unit." The transportation improvements were assigned to residential and non-residential categories based on "dwelling unit equivalent" (DUE factors). The DUEs were calculated by comparing the trip generation rate, trip length, and various characteristics of each land use. A single family unit is assumed to "generate" one DUE per day; all of the other land use categories are compared to the single family unit to derive their respective DUEs. For

example, a multi-family unit utilizes less of the transportation improvements compared to a single family unit, thus, it is assigned a DUE of 0.63.

Trip generation rates were determined by adjusting the number of primary trips to discount for "pass-by" trips and to more accurately reflect each land use's overall impact on the transportation improvements. A primary trip is defined as a trip made for the specific purpose of visiting a "generator"; in other words, the stop at the generator is the primary reason for the trip. A "pass-by" trip is a trip made as an intermediate stop on the way from origin to primary trip destination. For example, a man on his way home from work decides to stop at the supermarket; the trip from work to the supermarket is a "pass-by" trip because going to the supermarket is not his purpose for taking the trip. His trip from work to home is the primary trip because going home is his purpose for taking the trip.

Water and wastewater costs were allocated based on gallon-per-day factors, and storm drainage costs were distributed based on the engineer's estimate of impervious surface area. The benefit units used for the infrastructure financing analysis are consistent with those used by the engineers to size the improvements for which costs were estimated. The benefit units used to allocate costs to each land use are shown in Table 2.

TABLE 2	
BENEFIT UNITS USED FOR FACILITY COST ALLOCATION SUMMARIZED BY FACILITY CATEGORY	
<i>Transportation Improvements</i>	
Benefit Units	
Single Family Residential	1.00 Dwelling Unit Equivalent
Multi-Family Residential	0.63 Dwelling Unit Equivalent
Retail	1.60 Dwelling Unit Equivalent
Office	1.75 Dwelling Unit Equivalent
Industrial	0.90 Dwelling Unit Equivalent
Public/Institutional	1.75 Dwelling Unit Equivalent
<i>Water Facilities</i>	
Benefit Unit	214 gallons / day / capita
<i>Wastewater Facilities</i>	
Benefit Unit	93 gallons / day / capita
<i>Storm Drainage Facilities</i>	
Facility Cost Allocation by Land Use*	
Residential	\$900
Commercial	\$10,000
Industry	\$8,000
Public/Institutional	\$8,000
Other	\$0
*Cost allocations instead of benefit units were provided by Montgomery Watson.	
Source: DKS Associates, Montgomery Watson, and David Taussig & Associates.	

The facility costs shown in Table 1 were allocated to each land use category using the benefit units shown in Table 2. The total infrastructure cost assigned to each land use within each geographic area is shown in Tables 3 and 4. For purposes of allocating infrastructure costs, it was assumed that the "Other" land use category includes uses that will not contribute substantially to the demand for public facilities. Therefore, no costs were assigned to property in this category.

TABLE 3

**SUMMARY OF INFRASTRUCTURE COSTS ASSIGNED
TO EACH LAND USE CATEGORY
(Includes Transportation at Level of Service C, Water, Wastewater,
and Storm Drainage)**

	<i>SF Fee</i>	<i>MF Fee</i>	<i>Retail/ Local</i>	<i>Office</i>	<i>Industrial</i>	<i>Public / Institutional</i>	<i>Other</i>
	<i>(Per Unit)</i>	<i>(Per Unit)</i>	<i>(Per Acre)</i>	<i>(Per Acre)</i>	<i>(Per Acre)</i>	<i>(Per Acre)</i>	<i>(Per Acre)</i>
Scenario A							
Coast Range Foothills	\$5,757	\$5,003	\$39,864	\$0	\$0	\$62,751	\$0
Unincorporated West Valley	\$2,610	\$2,345	\$20,516	\$29,280	\$16,098	\$27,280	\$0
Unincorporated East Valley	\$2,831	\$2,356	\$29,212	\$35,101	\$23,013	\$34,121	\$0
Sierra Foothills	\$2,744	\$2,345	\$26,050	\$33,058	\$21,054	\$31,542	\$0
Sierra Nevada Mountains	\$2,664	\$2,390	\$20,849	\$0	\$0	\$27,889	\$0
Scenario B/C							
Coast Range Foothills	\$20,680*	\$17,609*	\$131,630*	\$0	\$0	\$0	\$0
Unincorporated West Valley	\$2,806	\$2,510	\$21,722	\$31,491	\$17,026	\$29,491	\$0
Unincorporated East Valley	\$3,083	\$2,541	\$31,932	\$40,197	\$25,147	\$37,615	\$0
Sierra Foothills	\$2,559	\$2,234	\$23,030	\$28,862	\$18,108	\$28,360	\$0
Sierra Nevada Mountains	\$4,558	\$3,602	\$49,144	\$0	\$0	\$58,730	\$0
Scenario D							
Coast Range Foothills	\$17,704*	\$15,095*	\$113,329*	\$0	\$0	\$197,437*	\$0
Unincorporated West Valley	\$2,558	\$2,300	\$20,193	\$28,687	\$15,849	\$26,687	\$0
Unincorporated East Valley	\$2,886	\$2,396	\$29,843	\$36,472	\$23,520	\$34,877	\$0
Sierra Foothills	\$2,470	\$2,175	\$51,925	\$44,051	\$56,391*	\$60,000*	\$0
Sierra Nevada Mountains	\$4,449	\$3,531	\$47,537	\$0	\$0	\$57,843*	\$0
Scenario E							
Coast Range Foothills	\$6,402	\$5,548	\$43,831	\$0	\$0	\$70,024*	\$0
Unincorporated West Valley	\$2,521	\$2,269	\$19,968	\$28,275	\$15,675	\$26,275	\$0
Unincorporated East Valley	\$2,747	\$2,303	\$27,945	\$34,808	\$22,025	\$32,695	\$0
Sierra Foothills	\$2,959	\$2,485	\$29,133	\$34,986	\$23,208	\$34,988	\$0
Sierra Nevada Mountains	\$2,702	\$2,422	\$21,082	\$0	\$0	\$28,317	\$0

¹A zero dollar amount means none of that land use is anticipated in that geographic area, except for the "Other" category, which has no infrastructure costs assigned to it.

²These financial burdens do not include state highway improvement costs, a portion of which may be funded by new development in the unincorporated county. (For detailed state highway fee allocation, refer to Tables 5 and 6.)

*As discussed further in this working paper, the financial burdens on these land uses renders development infeasible.

Sources: DKS Associates, Montgomery Watson, and David Taussig & Associates

TABLE 4

**SUMMARY OF INFRASTRUCTURE COSTS ASSIGNED
TO EACH LAND USE CATEGORY**
(Includes Transportation at Level of Service D, Water, Wastewater,
and Storm Drainage)

	<i>SF Fee</i>	<i>MF Fee</i>	<i>Retail/ Local</i>	<i>Office</i>	<i>Industrial</i>	<i>Public / Institutional</i>	<i>Other</i>
	(Per Unit)	(Per Unit)	(Per Acre)	(Per Acre)	(Per Acre)	(Per Acre)	(Per Acre)
Scenario A							
Coast Range Foothills	\$5,757	\$5,003	\$39,864	\$0	\$0	\$62,751	\$0
Unincorporated West Valley	\$2,610	\$2,345	\$20,516	\$29,280	\$16,098	\$27,280	\$0
Unincorporated East Valley	\$2,600	\$2,211	\$25,709	\$31,549	\$20,253	\$30,280	\$0
Sierra Foothills	\$2,219	\$2,014	\$18,109	\$24,867	\$14,244	\$22,867	\$0
Sierra Nevada Mountains	\$2,664	\$2,390	\$20,849	\$0	\$0	\$27,889	\$0
Scenario B/C							
Coast Range Foothills	\$20,680*	\$17,609*	\$131,630*	\$0	\$0	\$0	\$0
Unincorporated West Valley	\$2,806	\$2,510	\$21,722	\$31,491	\$17,026	\$29,491	\$0
Unincorporated East Valley	\$2,631	\$2,257	\$25,090	\$31,636	\$19,198	\$29,361	\$0
Sierra Foothills	\$2,415	\$2,143	\$20,836	\$27,159	\$16,384	\$25,965	\$0
Sierra Nevada Mountains	\$2,750	\$2,463	\$21,375	\$0	\$0	\$28,854	\$0
Scenario D							
Coast Range Foothills	\$17,704*	\$15,095*	\$113,329*	\$0	\$0	\$197,437*	\$0
Unincorporated West Valley	\$2,558	\$2,300	\$20,193	\$28,687	\$15,849	\$26,687	\$0
Unincorporated East Valley	\$2,564	\$2,193	\$24,954	\$31,281	\$19,664	\$29,532	\$0
Sierra Foothills	\$2,361	\$2,107	\$20,124	\$26,547	\$15,925	\$25,141	\$0
Sierra Nevada Mountains	\$2,738	\$2,453	\$21,305	\$0	\$0	\$28,725	\$0
Scenario E							
Coast Range Foothills	\$6,402	\$5,548	\$43,831	\$0	\$0	\$70,024	\$0
Unincorporated West Valley	\$2,521	\$2,269	\$19,968	\$28,275	\$15,675	\$26,275	\$0
Unincorporated East Valley	\$2,462	\$2,123	\$23,627	\$30,042	\$18,619	\$27,973	\$0
Sierra Foothills	\$2,757	\$2,358	\$26,064	\$32,205	\$20,710	\$31,643	\$0
Sierra Nevada Mountains	\$2,702	\$2,422	\$21,082	\$0	\$0	\$28,317	\$0

¹A zero dollar amount means none of that land use is anticipated in that geographic area, except for the "Other" category, which has no infrastructure costs assigned to it.

²These financial burdens do not include state highway improvement costs, a portion of which may be funded by new development in the unincorporated County. (For detailed state highway fee allocation, refer to Tables 5 and 6.)

*As discussed further in this working paper, the financial burdens on these land uses renders development infeasible.

Sources: DKS Associates, Montgomery Watson, and David Taussig & Associates

State Highway Improvements

The costs of improvements to state highways that would be needed to accommodate the new development projected for each scenario were also calculated. It is assumed that much of the funding for highway improvements will come from federal or state revenue sources, such as the gas tax or funds available through the Intermodal Surface Transportation Efficiency Act (ISTEA). There is no way to estimate what portion of the state highway improvement costs may be funded directly by new development in the unincorporated county. Therefore, the transportation infrastructure costs shown in Tables 3 and 4 above do not include *any* state highway improvement costs.

Tables 5 and 6 identify the financial burdens that would result if *all* the state highway improvement costs were allocated to land uses projected in the unincorporated areas. Table 5 includes facility costs associated with maintaining an LOS "C", and Table 6 includes costs to maintain an LOS "D". It is not anticipated under any scenario that all the state improvements would be funded from local revenues; in fact, development in many of the regions would become infeasible if the full cost was assigned. The figures shown in Tables 5 and 6 include 100 percent of the costs. The financial burdens associated with less than 100 percent local funding can be determined by applying an assumed percentage to the figures in Tables 5 and 6. For example, the County considers it likely that only 20 percent of the highway improvements will be funded. Locally, the transportation numbers in Tables 5 and 6 can be multiplied by 20 percent to calculate the corresponding burden for each land use.

TABLE 5 SUMMARY OF STATE HIGHWAY INFRASTRUCTURE COSTS AT LEVEL OF SERVICE C (Potential Fee per Land Use)							
	SFU Fee	MFU Fee	Retail/ Local	Office	Industrial	Public / Institutional	Other
	(Per Unit)	(Per Unit)	(Per Acre)	(Per Acre)	(Per Acre)	(Per Acre)	(Per Acre)
Scenario A							
Unincorporated West Valley	\$8,652	\$5,451	\$131,929	\$180,672	\$102,064	\$141,104	\$0
Unincorporated East Valley	\$5,366	\$3,381	\$81,273	\$82,389	\$64,026	\$89,101	\$0
Sierra Foothills	\$819	\$516	\$12,388	\$12,778	\$10,623	\$13,532	\$0
Scenario B/C							
Unincorporated West Valley	\$5,156	\$3,248	\$77,981	\$120,526	\$61,406	\$85,487	\$0
Unincorporated East Valley	\$2,406	\$1,516	\$36,467	\$41,359	\$28,741	\$39,876	\$0
Sierra Foothills	\$2,352	\$1,481	\$35,645	\$27,672	\$28,006	\$38,895	\$0
Scenario D							
Unincorporated West Valley	\$9,879	\$6,223	\$149,582	\$158,531	\$117,806	\$163,015	\$0
Unincorporated East Valley	\$2,727	\$1,718	\$41,332	\$43,884	\$32,600	\$45,187	\$0
Sierra Foothills	\$1,468	\$925	\$22,197	\$17,431	\$18,595	\$24,303	\$0
Scenario E							
Unincorporated West Valley	\$8,704	\$5,484	\$131,092	\$118,791	\$102,773	\$142,745	\$0
Unincorporated East Valley	\$1,701	\$1,072	\$25,775	\$28,446	\$20,327	\$28,184	\$0
Sierra Foothills	\$5,376	\$3,387	\$81,564	\$73,888	\$66,366	\$88,895	\$0
¹ A zero dollar amount means none of that land use is anticipated in that geographic area, except for the "Other" category, which has no infrastructure costs assigned to it. ² No necessary state highway improvements have been identified in the Coastal Range Foothills and the Sierra Nevada Mountains; therefore, these two regions are not included in this table. ³ This table assumes that none of the state highway costs are funded by sources other than new development in the unincorporated county.							
Source: DKS and David Taussig & Associates							

TABLE 6							
SUMMARY OF STATE HIGHWAY INFRASTRUCTURE COSTS AT LEVEL OF SERVICE D (Potential Fee per Land Use)							
	SF Fee (Per Unit)	MF Fee (Per Unit)	Retail/ Local (Per Acre)	Office (Per Acre)	Industrial (Per Acre)	Public / Institutional (Per Acre)	Other (Per Acre)
Scenario A							
Unincorporated West Valley	\$815	\$513	\$12,427	\$17,018	\$9,614	\$13,291	\$0
Unincorporated East Valley	\$4,487	\$2,827	\$67,951	\$68,884	\$53,531	\$74,496	\$0
Sierra Foothills	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Scenario B/C							
Unincorporated West Valley	\$3,005	\$1,893	\$45,451	\$70,249	\$35,790	\$49,826	\$0
Unincorporated East Valley	\$1,918	\$1,209	\$29,076	\$32,976	\$22,916	\$31,793	\$0
Sierra Foothills	\$1,952	\$1,230	\$29,589	\$22,971	\$23,248	\$32,287	\$0
Scenario D							
Unincorporated West Valley	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Unincorporated East Valley	\$1,793	\$1,129	\$27,170	\$28,847	\$21,430	\$29,704	\$0
Sierra Foothills	\$1,468	\$925	\$22,197	\$17,431	\$18,595	\$24,303	\$0
Scenario E							
Unincorporated West Valley	\$605	\$381	\$9,114	\$8,259	\$7,145	\$9,924	\$0
Unincorporated East Valley	\$1,426	\$898	\$21,608	\$23,847	\$17,041	\$23,627	\$0
Sierra Foothills	\$4,463	\$2,812	\$67,707	\$61,335	\$55,091	\$73,792	\$0
¹ A zero dollar amount means none of that land use is anticipated in that geographic area, except for the "Other" category, which has no infrastructure costs assigned to it. ² No necessary state highway improvements have been identified in the Coastal Range Foothills and the Sierra Nevada Mountains; therefore, these two regions are not included in this table. ³ This table assumes that none of the state highway costs are funded by sources other than new development in the unincorporated county.							
Sources: DKS and David Taussig & Associates							

Defining "Feasibility"

A land use plan is "financially feasible" only if a private developer can realize a sufficient return on development after paying for the land, public infrastructure, development exactions, and construction of residential or non-residential structures. The return required to make it worth taking on the risk of an often lengthy entitlement process and considerable financial investment will vary from developer to developer. Therefore, there is not a precise figure that separates a project from being feasible or infeasible.

The primary method used by most developers to determine whether a project "pencils out" is the *land residual analysis*. This analysis allows a developer to consider the amount that he/she should pay for the raw land after considering the costs of construction, marketing, taxes, financing, lot improvements, infrastructure, and required profit. If, after subtracting all of these costs, the residual value is equal to or greater than the sales price of the property, the project is "feasible" for the developer. If the residual value is lower than the sales price of the property, it would not make sense for the developer to buy the land unless he/she is able to reduce costs or is willing to reduce the desired profit margin. The following simplified example (which is not specific to Fresno County) provides an illustration of a land residual analysis:

SAMPLE SIMPLIFIED LAND RESIDUAL ANALYSIS	
New Home Sales Price (1,600 square foot home)	\$150,000
Less:	
Developer's Profit (assumes 10% return)	(\$15,000)
Direct Construction Costs (\$40/sq.ft.)	(64,000)
Indirect On-site Costs (\$3/sq.ft.)	(4,800)
General Costs (14% of sales price)(includes marketing, taxes, overhead, etc.)	(21,000)
Infrastructure Costs & Development Fees	(25,000)
Subtotal, Costs & Required Profit	<u>(\$129,800)</u>
Residual Land Value for Residential Lot	\$20,200

Based on the analysis set forth above, the maximum a land developer would be willing to pay for the subject property is \$20,200 per residential lot. From this calculation, it is easy to see how an increase in infrastructure costs and/or development fees has a direct impact on the residual value. To the extent current land prices are higher than \$20,200 per lot, developers would likely not be interested in buying property, leading to a shortage of housing in the long term. If a developer has already purchased property for a price higher than \$20,200, he/she would have to either reduce the expected return on the property, attempt to build lower quality product to reduce construction costs, or look for opportunities to reduce infrastructure costs and/or development fees.

Based on a review of public financing plans for a variety of recent development projects in northern California, a range of \$20,000 to \$30,000 per single family unit is typical for public infrastructure costs borne by new development. The higher end of the range is likely to occur in areas that can support more expensive housing which can, on a land residual basis, absorb slightly higher costs. Because home prices in Fresno County are lower than in the Bay Area and parts of Sacramento, infrastructure costs per unit must also be lower, assuming required returns are consistent in the different areas. The feasibility of residential development in Fresno County must be closely monitored if total infrastructure costs exceed \$25,000 per single family unit.

COMPARISON OF SCENARIOS

Table 3 reflects higher infrastructure cost burdens because of the increased cost of achieving a transportation Level of Service "C". In order to provide a look at the "worst-case" alternative, the comparison of the four scenarios provided below is based on infrastructure costs that assume LOS "C."

Scenario A

This scenario represents the base case and assumes there would be no significant shift in the pattern of economic activities. As shown in Table 1, this scenario results in the lowest cost for backbone infrastructure required to serve the unincorporated areas—a total of \$117 million to maintain a transportation LOS "C" and \$106.4 million if an LOS "D" is maintained. Wastewater and storm drainage improvements make up more than 60 percent of the total backbone infrastructure costs.

Scenario A results in the lowest infrastructure costs, but also the smallest amount of residential and non-residential land uses over which to spread these costs. As a result, the cost per residential unit and non-residential acre is actually the second highest of all the scenarios in all geographic areas except the Coast Range Foothills. The Coast Range Foothills is a unique area in that the cost of one new groundwater well must be spread over a relatively small amount of new development, which results in high burdens under every scenario. Scenario A projects more growth in this area than the other scenarios, which keeps the single family unit cost at \$5,757, which is lower than the other three scenarios.

For the other geographic regions, the infrastructure burdens under Scenario A range from a high of \$2,831 to a low of \$2,610 for a single family residential unit. Costs allocated to retail/local commercial uses outside the Coast Range Foothills vary from a high of \$29,212 per acre in the unincorporated East Valley to a low of \$20,516 per acre in the Unincorporated West Valley.

The infrastructure costs shown in Table 3 and 4 include only storm drainage, water, wastewater, and transportation improvements. Community facilities, (e.g., schools, parks, and fire and police stations) and County facilities (e.g., courts, jails, social service facilities) are not included in the figures. In addition, the water costs in Tables 3 and 4 do not include storage and conveyance costs, which may increase the costs substantially. Backbone infrastructure typically represents 30 to 50 percent of the total public facility costs borne by new development. Based on this general rule of thumb, the residential costs identified in Table 3 are feasible, even in the Coast Range Foothills.

It will be critical for the County to keep non-residential land uses competitive to achieve its economic development goals. Because most public agencies are motivated to attract new employers, infrastructure costs borne by non-residential development vary greatly throughout California. Total facility costs allocated to retail property typically range from \$50,000 to more than \$100,000 per acre, while industrial uses are typically assigned a burden between \$30,000 and \$50,000 per acre. Backbone infrastructure costs make up the majority of the total infrastructure burden for non-residential property, as commercial and industrial land is rarely assigned park costs or school costs exceeding the mandated state fee (currently \$0.30 per square foot of building area). Therefore, the costs shown in Table 3 may increase slightly, but should remain within the range of feasibility for non-residential land uses in the Central Valley. The one exception is public/institutional property in the Coast Range Foothills area, which is outside the range of feasibility for this type of property. The cost of the groundwater well assigned to this area (\$400,000) is too burdensome based on the minimal development expected in this area.

Scenario B/C

Scenario B/C provides for considerably more development in the unincorporated areas, resulting in a 170 percent increase in single family and multi-family units over Scenario A. Non-residential development also increases substantially, with 70 percent more retail and 270 percent more industrial acreage. The increased development results in a significant increase in backbone infrastructure costs, for a total of almost \$330 million if a transportation LOS "C" is achieved and almost \$284 million if an LOS "D" is deemed sufficient.

Although infrastructure costs increase more than 250 percent over Scenario A, the higher number of projected residential units and non-residential acres results in only slightly higher per-unit and per-acre costs, except for the Coast Range Foothills. Again, the water costs assigned to the Coast

Range Foothills make this area unique compared to the other four. In fact, in this scenario, none of the land uses in the Coast Range Foothills are feasible. Backbone infrastructure costs will average \$20,680 for a single family unit, \$17,609 for a multi-family unit, and \$131,630 for an acre of retail property. The water costs assigned to this area would have to be reduced to allow any of these land uses to be developed.

The cost allocations for three of the other geographic regions result in infrastructure burdens that range from approximately ten percent less to ten percent more than the burdens estimated for Scenario A. Costs allocated to the Sierra Nevada Mountains area increase considerably over Scenario A—an increase of more than 70 percent for single family units, 50 percent for multi-family units, and 130 percent for retail property.

Single family unit costs outside the Coast Range Foothills vary from a high of \$4,558 per single family units in the Sierra Nevada Mountains to a low of \$2,559 per unit in the Sierra Foothills. Costs allocated to retail/local commercial uses range from a high of \$49,144 per acre in the Sierra Nevada Mountains to a low of \$21,722 per acre in the unincorporated West Valley. As discussed above, the feasibility of residential development must be closely monitored if total infrastructure costs (backbone infrastructure plus community facilities) exceed \$25,000 per single family unit. Based on this general rule of thumb, the residential costs identified for Scenario B/C in Table 3 are feasible except for the Coast Range Foothills. Again, although the non-residential costs shown in Table 3 may increase slightly when community facilities are added, they should remain within the range of feasibility for non-residential land uses in the Central Valley. The two exceptions are: (1) the Coast Range Foothills which is assigned a cost of \$131,630 per retail/commercial acre; and (2) public/institutional property in the Sierra Nevada Mountains which is estimated to have an infrastructure burden of \$58,730.

Scenario D

Scenario D also provides for considerably more development in the unincorporated areas compared to Scenario A, although less development than that projected in Scenario B/C. Agricultural employment is assumed to be lower than projected in Scenario B/C, decreasing industrial land uses by more than 50 percent. As shown in Table 1, the total cost of backbone infrastructure for Scenario D is approximately \$257 million assuming LOS "C" and \$229 million if a LOS "D" is required.

Although infrastructure costs more than doubled over Scenario A, the higher number of projected residential units and non-residential acres results in lower per-unit and per-acre costs than those calculated for Scenario A for all but two of the geographic regions. Again, the Coast Range Foothills is the major exemption, with water costs pushing total infrastructure burdens to \$17,704 per single family unit, \$113,329 per retail acre, and \$197,437 per public/institutional acre. With the addition of water storage and conveyance facilities, as well as community facility costs, none of the land uses in the Coast Range Foothills would be feasible.

As shown in Table 3, Scenario D infrastructure costs range from a high of \$4,449 to a low of \$2,470 per single family unit within the other four geographic areas. Compared to Scenario A, these cost allocations range from 11 percent lower than the costs assigned to a single family unit in the Sierra Foothills in Scenario A to almost 70 percent higher for a single family unit in the Sierra Nevada Mountains.

Non-residential cost burdens in Scenario D increase considerably for the Sierra Foothills and Sierra Nevada Mountains. Retail property is assigned a total cost of \$51,925 in the Sierra Foothills and \$47,537 in the Sierra Nevada Mountains. Public/institutional property is assigned total costs of almost \$60,000 per acre in both regions. The unincorporated East and West Valley areas have non-residential burdens that are almost exactly the same as those calculated in Scenario A.

As discussed above, the feasibility of residential development must be closely monitored if total infrastructure costs (backbone infrastructure plus community facilities) exceed \$25,000 per single family unit. Based on this general rule of thumb, the residential costs identified in Table 3 are feasible for all areas except the Coast Range Foothills. Again, although the non-residential costs shown in Table 3 may increase slightly when community facilities are added, they should remain within the range of feasibility for non-residential land uses with the following exceptions: (1) non-residential property in the Coast Range Foothills is well beyond the range of feasibility; (2) industrial and public/institutional property in the Sierra Foothills is beyond the range of feasibility; and (3) public/institutional property in the Sierra Nevada Mountains is over-burdened based on the current cost allocations.

Scenario E

Scenario E results in the highest population and employment of all four scenarios. As shown in Table 1, it also produces the highest cost of backbone infrastructure—a total of more than \$415 million for a transportation LOS “C” and \$372 million to achieve an LOS “D”. Once again, although infrastructure costs more than triple over the costs shown for Scenario A, the higher number of projected residential units and non-residential acres results in lower per-unit and per-acre costs in two geographic areas, and only slightly higher costs in the other three areas.

Scenario E infrastructure costs range from a high of \$6,402 to a low of \$2,521 per single family unit within the five geographic areas. Costs allocated to retail/local commercial uses range from a high of \$43,831 per acre in the Coast Range Foothills to a low of \$19,968 per acre in the Unincorporated West Valley. As discussed above, the feasibility of residential development must be closely monitored if total infrastructure costs (backbone infrastructure plus community facilities) exceed \$25,000 per single family unit. Based on this general rule of thumb, the residential costs identified in Table 3 are feasible for the Fresno County area. Although the non-residential costs shown in Tables 3 may increase slightly when community facilities are added, they should remain within the range of feasibility for non-residential land uses in the Central Valley. The one exception is public/institutional property in the Coast Range Foothills, which is assigned costs of more than \$70,000 per acre.

SUMMARY COMPARISON

In general, all four scenarios result in backbone infrastructure costs that appear to be within the range of feasibility for most geographic areas, with the major exception of the Coast Range Foothills in two of the four scenarios. Most infrastructure costs tend to increase directly with an increase in the amount of development. At the general plan planning stage, estimation of infrastructure costs typically is based upon more general cost factors that do not vary regardless of where development occurs. This explains why there is not a large disparity among scenarios except within the Coast Range Foothills, which requires large components of infrastructure with little projected growth over which to spread the costs. Costs for most community and County facilities, such as schools, parks, and fire and police stations also tend to increase directly with an

increase in population. Therefore, although the costs for each scenario will increase substantially with the addition of other capital facilities, the relative comparison of the scenarios is unlikely to change dramatically.

Once a preferred scenario is selected, a more detailed look at the cost of backbone infrastructure and other capital facilities will be required. In addition to estimating the total cost, a facility phasing schedule will be developed to assist in identifying major funding gaps that would occur if funding came strictly from pay-as-you-go sources, such as impact fees. Factoring in the timing of public facility needs will provide the basis for analyzing the need for facility oversizing, debt financing, and reimbursements.

10. BENEFIT/COST ANALYSIS

BACKGROUND

Benefit/cost analysis provides a means of comparing competing projects or plans by translating their various impacts into consistent dollar terms. A comprehensive benefit/cost analysis, attempts to convert all benefits and costs, even more intangible values such as the social benefits of clean air or reduced traffic congestion, into dollars and cents. At this stage in the Fresno County General Plan Update process, however, there is not enough detail in the scenarios to conduct a rigorous valuation for each impact area. This benefit/cost analysis, therefore, compares economic benefits and costs in dollar terms, but provides more qualitative comparison for the environmental issues.

In a sense, benefit/cost analysis is a form of investment analysis, indicating what costs are necessary in order to obtain the benefits of each scenario. The benefits addressed in this analysis relate primarily to the volume of business activity and the associated payrolls created by each scenario. The quantifiable costs shown in the analysis are the public expenditures needed to provide the necessary capital improvements and to fund the annual operation and maintenance of public services.

The impact analysis does not include all the costs associated with each scenario. For example, while County government costs are included as well as basic infrastructure costs, no analysis has been done of school facility costs or costs of agencies not under direct County jurisdiction. For this reason, and due to the inherent uncertainty of this type of analysis when spread over a 20- to 25-year planning period, the benefit/cost ratio for each scenario should not be considered an expression of the actual net benefit that would accrue to county residents. Rather the ratios simply provide a basis for comparing scenarios in terms of the factors included in the analysis.

It is important to note as well that, while the economic and growth scenarios were constructed for the county as a whole, the impact analysis focuses primarily on the unincorporated areas under County jurisdiction. Therefore, the benefit/cost ratios reflect the pattern of growth outside the cities, rather than the benefits and costs countywide.

COMPARISON OF SCENARIOS

Economic Comparisons

Table 1 shows the figures for the benefits and costs included in the analysis. The bottom line of the table shows the ratio of benefits to costs for each scenario. In each case, the total benefits in the upper part of the table have been divided by the total costs in the lower part of the table. The resulting figures are the benefit/cost ratios in the last line of the table.

Scenario B/C returns the best result with a benefit/cost ratio of 9.6. This is due primarily to the fact that it provides the highest number of jobs in the unincorporated area, due to its focus on agricultural production and manufacturing. Scenario E also provides a high number of jobs in unincorporated county areas, but the types of jobs emphasize retail services associated with the much larger population in the unincorporated area, as compared to Scenario B/C. This scenario has a benefit/cost ratio of 8.6. The costs of serving the larger population in Scenario E are not

offset by the job base it provides.

TABLE 1 BENEFIT/COST ANALYSIS QUANTIFIABLE MEASURES (All Figures in Millions of 1996 Dollars)				
	<i>Scenario A</i>	<i>Scenario B/C</i>	<i>Scenario D</i>	<i>Scenario E</i>
Benefits				
Labor Income	\$9,885	\$16,434	\$9,645	\$16,248
Business Income	\$25,783	\$40,539	\$36,114	\$38,992
Subtotal	\$35,668	\$56,973	\$45,759	\$55,240
Costs				
Capital Costs	\$267	\$520	\$389	\$620
Net County Service Costs	\$4,125	\$4,683	\$4,564	\$5,041
Enterprise Fund Costs	\$608	\$716	\$681	\$770
Subtotal	\$5,000	\$5,919	\$5,634	\$6,431
Benefit/Cost Ratio	7.1	9.6	8.1	8.6
<i>Source: Applied Development Economics</i>				

Scenario A returns the worst result of all the scenarios, with a benefit/cost ratio of 7.1. This scenario has the lowest employment growth of all of the scenarios and thus is quite low on the benefits side of the equation. Population, however, grows at a faster rate than does employment, leading to relatively higher costs for infrastructure and services.

With a benefit/cost ratio of 8.1, Scenario D returns a slightly lower result than does Scenario E. To a large extent, this is a function of the geographic distribution of growth in Scenario D. The county as a whole would experience strong growth in well-paying office and manufacturing jobs, but most of these jobs would be located in the cities, mainly in the Fresno/Clovis Metropolitan Area. The County, on the other hand, would shoulder a relatively high proportion of the cost to serve the resident population in this scenario. If the entire county were included in this analysis, and especially if the analysis focused solely on the impacts in the major cities in the county, this scenario may in fact return the highest net benefit.

Table 2 shows the relationships between population and employment growth (1996-2020 increments) in the unincorporated areas, in the cities, and for the county as a whole for each scenario. The "Pop/Jobs" ratios shown in the table reflect the number of new residents in the county for each new job in each scenario. The lower the ratio, the better the balance between population and economic growth.

TABLE 2 POPULATION AND EMPLOYMENT RELATIONSHIPS GROWTH INCREMENT 1996-2020				
	<i>Scenario A</i>	<i>Scenario B/C</i>	<i>Scenario D</i>	<i>Scenario E</i>
Total County				
Population	648,786	681,704	709,245	743,668
Employment	265,538	340,917	354,482	339,065
Pop/Jobs ratio	2.44	2.00	2.00	2.19
Unincorporated Areas				
Population	98,616	261,417	219,893	353,326
Employment	63,483	105,550	64,950	104,380
Pop/Jobs ratio	1.55	2.48	3.39	3.38
Cities				
Population	550,170	420,287	489,352	390,342
Employment	202,056	235,377	289,532	234,685
Pop/Jobs ratio	2.72	1.79	1.69	1.66
<i>Source: Applied Development Economics</i>				

On countywide basis, Scenarios B/C and D have the most balanced growth, with exactly half as many jobs as new residents. In the county unincorporated area, however, Scenario D has a much higher proportion of population than does Scenario B/C and this is a key factor in the results of the impact analysis. Scenario A has relatively little population allocated to the unincorporated area, but its level of economic growth is too low to bring it up to par with the other scenarios.

Description of the Benefit/Cost Measures

The figures in Table 1 reflect the accumulated sum of income or costs during the 1996-2020 planning period. (All figures are in constant 1996 dollars and reflect the sum of costs or revenues in each category during the 1996-2020 period. Revenues or costs which are annual are assumed to grow uniformly in relation to development growth during the 1996-2020 period. Future figures have not been discounted to present value, since all figures are in constant dollars and none of the projections involve uneven cost or revenue spreads.) Labor income is calculated using average wage levels in the broad industry types projected for the scenarios. Business income is the direct value added (not including labor income) created by the business activity associated with the job increases in each scenario. "Value added" is an economic term that measures business receipts less the costs of intermediate goods and services (production inputs) needed to produce a business' gross sales. Therefore, it is a measure of the net economic activity generated locally in Fresno County.

The capital costs reflect backbone infrastructure costs; that is, costs for transportation improvements, water and wastewater service, and storm drainage. These infrastructure costs both provide necessary services to support economic growth and mitigate impacts that growth can entail. For example, studies have been done to estimate the cost of traffic congestion in terms of lost productivity as well as health costs associated with air pollution. The road improvements included in this analysis would maintain a level of service of "D", thus, reducing the amount of congestion experienced by residents and workers in each scenario. Similarly, the storm drainage improvements reduce the risk of exposing new development to flood hazards, with associated personal and economic loss.

While infrastructure improvements do not remove all risk of loss or costs associated with traffic congestion, flooding or inadequate water, and wastewater services, they do tend to equalize the risks among the scenarios, and are, therefore, useful as proxies for costs that cannot otherwise be measured from the data available for each alternative.

The fiscal analysis in a previous working paper indicates that the County would essentially break even under all of the scenarios, with revenues approximately equaling the service costs needed to support growth in each scenario. However, from the standpoint of the benefit/cost analysis, locally-generated taxes represent costs to the taxpayers rather than benefits in and of themselves. The benefit of government revenues is reflected in the ability of the county economy to grow, as indicated in the upper portion of Table 1.

In the costs section of Table 1, two sets of figures have been included from the fiscal analysis. The Net County Service Cost reflects the cost of County services that must be paid for by local taxpayers, excluding state and federal revenues the County receives. While Fresno County taxpayers certainly pay state and federal taxes as well as local taxes, this analysis focuses on the benefit/cost relationships of economic and governmental entities within the county. Enterprise funds have also been included since they reflect additional user charges paid by the private sector for public services.

Non-Quantifiable Costs

Studies done throughout the U.S. have estimated the economic costs of air and water pollution, traffic congestion, and other environmental impacts of growth. However, the economic and growth scenarios do not provide sufficient detail to quantify the environmental impacts to the extent that would permit calculations of economic cost. Table 3 provides a comparison based on the earlier working paper on natural resources.

TABLE 3				
NON-QUANTIFIABLE MEASURES				
	<i>Scenario A</i>	<i>Scenario B/C</i>	<i>Scenario D</i>	<i>Scenario E</i>
Habitat Conversion	4%	4%	4%	5%
Air Quality				
ADT	1.00	1.05	1.08	1.10
VMT	1.00	1.10	1.10	1.16
Stationary (Indus. Dev.)	1.00	3.18	2.45	2.54
Area wide (Total Dev.)	1.00	1.11	1.16	1.20
Receptors (Pub./Inst. Dev.)	1.00	1.50	1.53	1.61
Average Score	1.00	1.59	1.46	1.52
<i>Source: Applied Development Economics</i>				

The percentage of habitat loss is shown in the first line. These figures do not vary much among the scenarios, but are slightly higher for Scenario E due to its higher level of growth. Scenarios A and E propose more development in the unincorporated East Valley, which has the greatest potential for habitat conversion. Scenarios B/C and E propose more development in the Sierra Foothills and Mountain areas, which would affect natural habitats in those areas.

The lower part of the table provides land use indicators that suggest the possible relative level of impact for several factors related to the air quality impacts of the scenarios. In order to make the comparison, Scenario A, was set as the base level for each indicator. The indicators for each of the other scenarios show the percent deviation of the scenario from Scenario A. The indicators include the amount of development of both pollution generators and sensitive receptors. For example, Scenario B/C would generate five percent more average daily traffic (ADT) than would Scenario A (indicator equals 1.05). Scenarios D and E would increase ADT 8 percent and 10 percent, respectively, over Scenario A.

The bottom line in this part of the table shows the average air quality score for each scenario in relation to Scenario A, assuming each indicator is of equal importance. In contrast to the benefit/cost ratios in Table 1, the higher scores in Table 3 reflect a worsening of air quality. Scenario B/C shows the worst result, primarily due to its high amount of industrial development which creates stationary sources of air pollution. Scenario E shows the poorest results for each of the other categories besides industrial development.

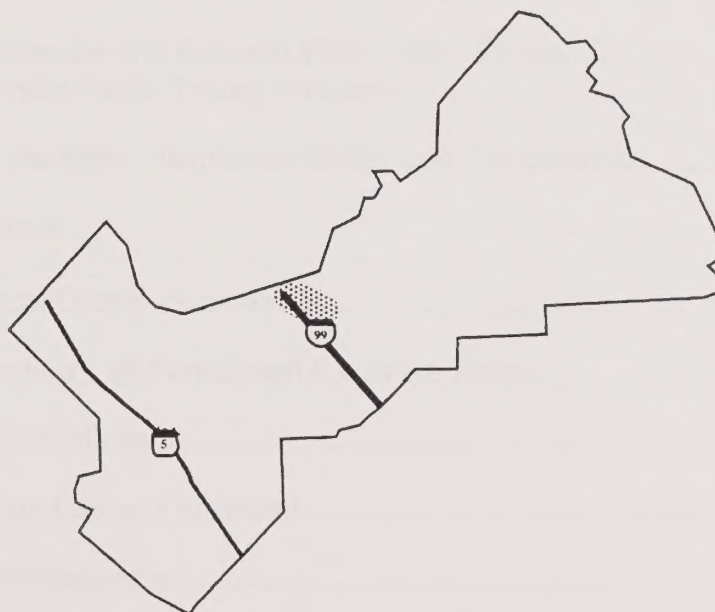
While these results appear to bring Scenarios B/C and E closer together in their overall benefit/cost relationships, they reflect land use relationships rather than actual air emissions. As noted in the air quality analysis, continued regulation and improvements in both mobile and stationary emissions control technology should significantly reduce the impacts of growth on air quality in the future.

TECHNICAL APPENDIX

FRESNO COUNTY RESIDENTS' VIEWS OF GROWTH, RESOURCES AND JOBS

Fresno County and the Future: Residents' Views of Growth, Resources and Jobs

Prepared for the Fresno County General Plan Update Process



University of California Cooperative Extension,
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EXECUTIVE SUMMARY

What 128 residents of Fresno County say about the present and future of their county is the subject of this report. Presented here are views about land use and growth trends, farmland and resource protection, jobs and economic development, and related issues. They were expressed in 15 focus group sessions that were conducted in February-March of 1997 and represented ten different communities and four major countywide interests.

Written by local and UC Davis staff of the University of California Cooperative Extension (UCCE), this report was prepared for the update of the Fresno County General Plan. Its purpose is to provide information on citizen views to the Fresno County Board of Supervisors, other county officials, and the consultants who are working on the revised plan. The update process, approved by the Board of Supervisors in late 1996, will be completed in 1999.

This report is based exclusively on the perceptions of focus group participants that were expressed in the group discussions, as recorded during these sessions. Their comments are summarized here without authors' interpretations.

Major Ideas

The focus groups ranged far and wide in the topics of their discussions. But in assessing current conditions, anticipating the impacts of future growth, and suggesting policies for the General Plan, participants stressed certain common ideas and desires. The most prominent of their opinions and suggestions were:

1. Urban development in both the unincorporated areas and cities of Fresno County should be more compact and efficient, emphasizing development at higher densities and urban infill.
2. New development belongs primarily in cities rather than in the county's unincorporated, agricultural areas.
3. Farmland protection should be a major goal of the General Plan Update.
4. New jobs to combat current high unemployment and the needs of the growing population can be obtained, at least in part, by adding to the value of farm production through processing and other activities.
5. County and city governments should be more aggressive in seeking to attract new industry through transportation and other infrastructure improvements, streamlined governmental processes, and specific incentives.
6. Less intergovernmental bickering and more collaboration, between the county and cities and at a regional level, are needed to attract new jobs, direct urban growth, and deliver public services.
7. Once established, the policies of the updated General Plan should be adhered to and applied consistently, in place of inconsistencies in how the current plan is implemented.

8. Positive aspects of living in Fresno County include its central location, natural beauty, rural lifestyle, cultural diversity and friendly people. Negative aspects, on the other hand, include urban sprawl, deteriorating air quality, and lack of job opportunities.

In offering these and other ideas, focus group participants did not sharply distinguish between county and city policies and development practices in Fresno County. A good part of the discussion in most groups involved the northerly and northeasterly growth patterns in the urbanized Fresno-Clovis area, criticized by many participants for resulting in inefficient land uses and the abandonment of older neighborhoods.

Specific Suggestions

Focus group participants also had more specific suggestions for the updated General Plan. In connection with land use and growth, participants wanted to see:

1. clearer priorities as to where new development should and should not be allowed;
2. fewer approvals of ranchette and other large lot developments; and
3. locating some new development in the eastern foothills, an area of the county with little prime agricultural land.

Most of the focus group comments that concerned resources other than land dealt with the local water supply as essential to the retention of a strong agricultural economy and to serve the expanding population. Participants opposed the transfer of local water to other counties, and favored additional storage facilities and "banking" of excess water.

General Plan suggestions related to economic development included:

1. more attention to vocational and technical training in the county's high schools;
2. development of an air cargo port to ship local products to worldwide markets; and
3. an improved east-west highway corridor to facilitate truck shipments between the Fresno urbanized area, Highway 99 and Interstate 5.

Project Methods: Participants, Groups and Questions

A 15-member steering committee, composed of members of citizens' advisory committees and county staff, advised the UCCE team on several aspects of the project—including selection of focus group participants, identification of focus group categories and locations, and review of a draft report.

The 128 persons who participated in the focus groups are not a statistically representative sample of the 760,000 residents of Fresno County. However, the 15

groups were broadly representative of different countywide interests and geographical areas. In selecting persons to invite to take part in the groups, the project expressly sought individuals who were active in civic affairs at countywide or community levels, excluding persons who then occupied elected office in county or municipal government. Consequently, participants in the group sessions were articulate and knowledgeable about county and local issues—key factors in informing the General Plan update process. More than 300 citizens of Fresno County, residents of both unincorporated areas and cities, were invited by letter to participate in the focus group interviews.

The five countywide groups were composed of persons from agricultural, business (two groups), development, and environmental interests. Selected for their geographical distribution throughout the county, the 10 geographical groups represented three different types of communities:

- Three Fresno City neighborhoods—North, Southeast, Southwest.
- Three other communities in the Fresno-Clovis urbanized area—Clovis, Nearwest, Northeast.
- Four “outcounty” and generally rural areas—Eastside, Foothills, Highway 99, Westside.

Between five and 14 persons participated in each group interview, for an average of 8.5 participants per session.

Moderators asked the same set of 10 questions in each group session, leading to discussion in these three major areas:

- Positive and negative views of living in Fresno County.
- Projected impacts of future population growth.
- Suggestions for the General Plan Update.

Information about participants’ individual views was also obtained through a written questionnaire that asked their opinions about quality of life conditions, local government spending priorities, and the most appealing ideas expressed during the group sessions.

Organization of the Report

This report’s major chapters are:

- I. Introduction
- II. Major Themes
- III. Likes and Dislikes
- IV. Perceived Impacts of Future Growth
- V. General Plan Suggestions: Land Use, Urban Growth and Resources
- VI. General Plan Suggestions: Jobs, Economic Development and Transportation
- VII. Plan Implementation and Intergovernmental Cooperation

Quoted excerpts from the discussions, identified by focus group, are used throughout the report to illustrate particular ideas. Completing the report are a set of appendices that contain supplemental information about the groups, participants, project methods and questions.

I.

INTRODUCTION

How do Fresno County residents view the present and future of their community and region? This report summarizes the opinions of 128 residents of the county, as expressed in the discussions of 15 focus groups. It was prepared as a contribution to the update of the Fresno County General Plan, the first of several public participation phases in the update process. The focus group project is an educational activity of the University of California Cooperative Extension. UCCE academic staff, from the Cooperative Extension office in Fresno County and the Davis campus, organized the project, conducted the focus group sessions, and wrote this report.

This report is based exclusively on the perceptions of focus group participants that were expressed in the group discussions, as recorded during these sessions. Their comments are summarized here without authors' interpretations.

The General Plan Update

The Fresno County Board of Supervisors in late 1996 approved a complete update of the county's General Plan, last revised in its entirety in 1976. The current update involves a 33-month process to be completed in 1999, with public reviews to take place at various points in the process. A centerpiece of the effort is a countywide Economic Development Strategy. The process also will revise land use, circulation, conservation and open space elements of the General Plan and new agricultural and air quality elements. The Board of Supervisors selected a team of consultants, led by Mintier and Associates, to prepare the General Plan Update. Oversight of the process is provided by the Fresno County Public Works and Development Services Department.

The Focus Group Project

The purpose of the project and this report is to provide information on citizen views and ideas to the Fresno County Board of Supervisors, other county officials, and the consultants' team working on the General Plan Update. Aware of the emerging update process, Linda Manton (Director of the UCCE Fresno County office) and Al Sokolow (Public Policy Specialist at UC Davis), first proposed the focus group project to county government in the fall of 1996. A special grant during 1996-97 from the UC Division of Agricultural and Natural Resources, for educational projects on farmland and urbanization issues in several counties, made the project possible. (Projects under this grant have also been carried out in Lake, Solano and Merced counties.) The Fresno Board of Supervisors in November approved the UCCE proposal, and provided a modest amount of supplemental funding to support local expenses.

Manton and Sokolow were joined in the project by two colleagues from the Davis campus, Joan Wright (Education Research Specialist) and Robin Kozloff (Research

Associate). The UCCE team brought to the project experience in conducting focus group interviews and a familiarity with California county government and planning processes. Shannon Spencer, who assisted the team as project coordinator, worked out of the UCCE Fresno County office in handling the details of focus group invitations, taping and transcriptions, and other local arrangements.

A 25-member steering committee, composed of members of three citizens' advisory committees (Economic Development Steering Committee, Housing and Community Development Advisory Committee, and Planning Commission), advised the UCCE team on several aspects of the project. The committee met three times to identify focus group categories and locations, nominate invitees to the group sessions, participate in a pilot group interview, and review a draft of the report. Appendix G identifies the members of the steering committee.

We chose the technique of conducting focus group interviews to collect the opinions of Fresno County citizens, instead of the more common survey method of interviewing individuals by phone or mail, because it permits a more in-depth exploration of problems and issues.

Focus Group Participants

The 128 persons who participated in the focus groups were not a statistically representative sample of the 760,000 residents of Fresno County. Strict demographic representation was not our most important standard for focus group membership. Instead, the emphasis was on obtaining participants who were articulate and knowledgeable about county and local issues—key factors in informing the General Plan update process. Consequently, in selecting persons to invite to take part in the groups, we expressly sought individuals who were active in civic affairs in local government). We were sensitive at the same time to the value of having broad demographic representation among focus group members, and so we took steps to include a degree of diversity in ethnic, gender and other characteristics among the more than 300 invites. Nevertheless, the 128 actual participants in the group interviews included smaller proportions of Latinos, women, young adults, and blue collar workers than present in the overall demographics of the county. Varying rates of acceptances of the focus groups invitations were partly responsible for this difference.

Participants demonstrated diverse characteristics in other respects. The 15 groups represented different countywide interests and geographical areas. And although the members of each group were fairly homogenous as to countywide interest or area of residence, they expressed varied opinions and ideas.

As Appendix B shows, slightly more than half (66 of 128) of the participants live in unincorporated areas throughout the county. (One person is a resident of a nearby community in Madera County, but has family ties and business and property interests in Fresno County.) Most (40 of 62) of the residents of incorporated communities live in the City of Fresno, but 9 of the county's other 14 cities are also

represented. Most participants earn their income as business people (including farm owners and managers) and professionals. Most also are well educated; 82 percent had undergraduate or advanced degrees. About 40 percent of participants are Fresno County natives; those born elsewhere have lived in the county an average of about 27 years. The average age of participants was 52 years, and ranged from 20-82. (Appendix A presents the background characteristics of the members of each focus group.)

Appendix C details the process used to select participants, conduct the focus groups, and record the discussions to use in preparing this report. Several aspects of the process merit brief mention here:

- Letters of invitation were sent initially to 335 persons, 18-30 per group.
- About 40 percent of invitees responded with acceptances; fewer still actually showed up for the group sessions.
- Because of low responses in some cases to the initial invitations, additional letters of invitation for a few of the groups were sent to supplemental lists and meetings were rescheduled to later times.
- Between five and 14 persons participated in each group, for an average of 8.5 participants per session.
- Focus group sessions were mostly held on weekday evenings and lasted, on average, a little less than two hours (including time for instructions).
- Group discussions were taped and transcripts prepared from the tapes provided the basic information for this report.
- To encourage open discussion, participants were promised anonymity; therefore, this report and the transcriptions of the discussions do not attribute comments to specific individuals.

While the open discussions of the 15 focus groups are the basis of this report, we also sought information from individual participants through a written questionnaire (Appendix E) distributed at each session. As well as gathering demographic information (residence, occupation, education, age, etc.), the brief questionnaire asked respondents' opinions about quality of life conditions, local government spending priorities, and the most appealing ideas expressed during the group discussions. Questionnaire results are incorporated in the report at several places; Appendix F presents additional information from this source.

The Focus Groups

The steering committee and the UCCE team jointly identified the categories of Fresno County residents to compose specific focus groups. We employed a mixed strategy in determining the groups' composition and location, wanting to get representation of both major countywide interests and different geographical areas of the county. Among the 15 groups, as a result, were five representing countywide interests and 10 for various areas throughout the county.

Tables I-1 and I-2 show the details of each group's location, date, and number of participants. (Among the countywide groups, a second Business group was organized because of low turnout at the first session.)

Table I-1: Focus Group Details: Countywide Groups

Group	Dates	Location	Number of Participants	Interests Represented
Agriculture	February 12	UCCE office	10	farming, related businesses
Business I	February 13	UCCE office	6	associations, labor, administration, law
Business II	March 18	Fig Garden Library	6	business owners, professionals
Development	March 5	Fig Garden Library	9	real estate, construction, architecture, finance
Environment	March 4	Fig Garden Library	14	river protection, habitat, soil conservation, other resources

Table I-2: Focus Group Details: Community Groups

Group	Dates	Location	Number of Participants	Communities Represented
Clovis	February 24	Clovis HS	9	City of Clovis and fringe areas
Eastside	February 20	Kearney Ag Center	7	Sanger, Reedley, Orange Cove
Foothills	March 19	Fairmont School	9	Auberry, Prather, Shaver Lake, Fresno
FresnoNorth	February 26	Fig Garden Library	11	Fresno city and fringe areas
FresnoSouth-east	March 10	UCCE office	9	Fresno city and fringe areas
FresnoSouth-west	March 11	County Plaza Building	7	Fresno city and fringe areas
Highway 99	March 12	Selma Library	5	Selma and Kingsburg areas
Nearwest	March 18	Farm Bureau	10	fringe areas and Fresno city
Northeast	February 19	Millerton	9	Friant area and Fresno city
Westside	March 27	West Hills College, Firebaugh	7	Firebaugh, Kerman, San Joaquin, Coalinga

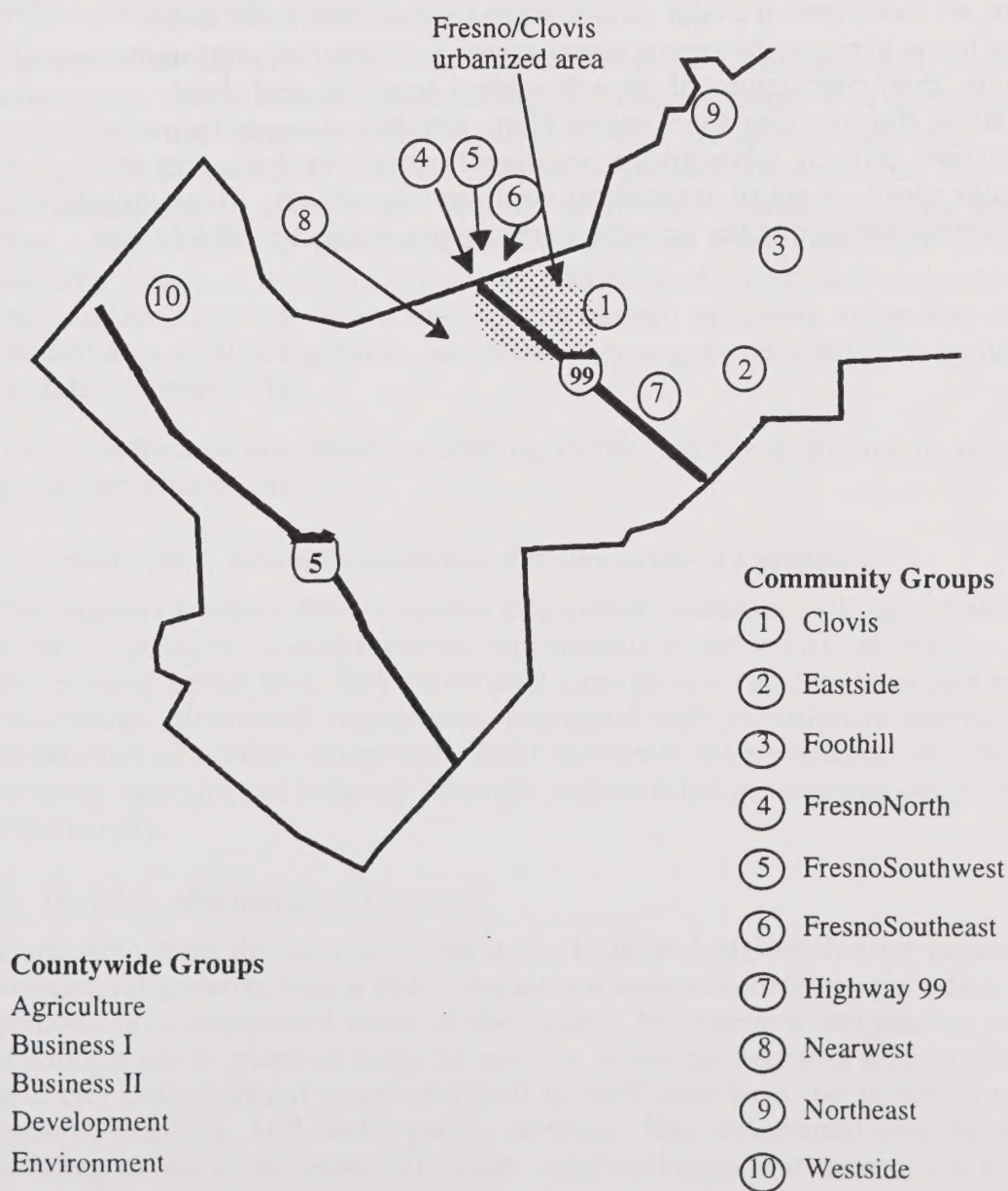
The map in Figure 1 shows the locations of the 10 community-based groups. They represent three types of communities, in relation to location and degree of urbanization:

- Three Fresno City neighborhoods—North, Southeast, Southwest.

- Three other communities in the Fresno-Clovis urbanized area—Clovis, Nearwest, Northeast.
- Four “outcounty” and generally rural areas—Eastside, Foothills, Highway 99, Westside.

All but one group contained residents of both cities and unincorporated communities, in part because the groups covered areas broader than single communities. The exception was the Business I group with only city residents.

Figure I-1. Location of Community Focus Groups



Group Questions and Report Organization

Moderators asked the same set of 10 questions in each group session (see Appendix D). For the most part they were open-ended or general questions, encouraging participants to jump in with their own ideas and areas of concern. Three major areas of opinions and suggestions were covered by the questions and discussions:

1. Positive and negative views of living in Fresno County.
2. Projected impacts of future population growth.
3. Suggestions for the General Plan Update.

The remainder of this report generally follows the order of these topics. Following the next chapter, an overview of major countywide themes and local issues discussed by the focus groups, the report summarizes participants' comments about current conditions, their predictions of growth-related impacts, and their suggestions (in three chapters) for the General Plan. Quoted excerpts from the discussions, identified only by focus group, are used throughout the report to illustrate particular ideas. A set of appendices complete the report. They contain supplemental information about the groups, participants, project methods and questions.

II.

COUNTYWIDE THEMES AND LOCAL ISSUES

Focus group participants talked about many General Plan issues of concern to them, varying in degree of importance to individual participants. If we look closely at what was most emphasized in the discussions, more similarities than differences emerge among the 15 groups, suggesting major countywide concerns. At the same time, issues of special interest to particular communities or localities popped up in some of the groups.

Major Countywide Themes

Here we identify nine major countywide themes. Overlapping to some extent, they encompass the dominant issues of the discussions, issues that occupied the great majority of the approximately 25 hours of total group conversations. Virtually all of the groups at least briefly touched on all or most of these themes. But they are identified here as major items, because each was discussed at some length in more than a third of the 15 groups; seven themes were given significant attention by a majority (eight or more) of groups. Comments of participants regarding each theme include three aspects—what they saw as current problems, what they anticipated as the impacts of future growth, and what they suggested should be included in the updated General Plan.

The nine themes are ranked according to the number of groups in which they were given significant attention.

1. Create jobs, promote economic development—14 groups

Participants worried that projected population increases will aggravate already high levels of poverty, unemployment, and unskilled and poorly paid jobs. As strategies for creating better jobs, they advocated a range of incentives to attract new businesses: decreased regulations, improved transportation networks, and vocational education programs. Both economic diversification and building on the existing agricultural industry through value-added enterprises were discussed extensively.

2. Develop efficiently—14 groups

Compact urban development, featuring infill and higher density especially for residential growth, was a much supported and noncontroversial ideal. For more remote, unincorporated areas of the county, the common suggestion was cluster development in place of large lot parcels. Many participants said that current county and city development practices result in inefficient land use patterns, marked by sprawl, leapfrog, and costly public services. Redevelopment and investment in existing urban areas, especially older neighborhoods and downtown Fresno, was favored over continued expansion onto farmland.

3. Direct growth—13 groups

Accompanying the expressed interest in efficient development, much attention was given to the preferred location or direction of future growth. Many participants questioned whether Fresno County government should be in the “development business” at all. They generally endorsed the county’s overall policy of directing urban growth to the cities and away from farmland and other unincorporated areas, although a number of people said that county development decisions deviated too frequently from the policy. The northward direction of growth in the Fresno area away from stagnating older neighborhoods was deplored by many as leading to increases in geographical segregation in income, racial, and ethnic terms. There was less consensus in discussions about the desirability of urban expansion in several specific unincorporated areas of the county—northeast, foothills, west of Fresno—although support for preventing growth onto farmland was widespread and strong.

4. Maintain agriculture and protect farmland—11 groups

That agriculture is Fresno County’s top economic activity and merits protection and nurturing was the most frequent single comment volunteered by focus group participants. Discussion about this theme generally concerned the multi-billion dollar contribution of farming to the local economy, but also dealt with its significance for world food needs and as a form of open space and rural amenity. How to minimize the conversion of farmland to urban uses was a major focus and one that overlapped with the themes of development efficiency and direction (see above). But participants also discussed in some detail other requirements of a prosperous local agriculture—particularly a firm water supply and improved transportation network (see below) and the need to add to the value of commodity production with processing, equipment manufacturing and related activities.

5. Improve transportation— 11 groups

Among a number of public service and infrastructure areas discussed, Fresno County’s transportation system and its inadequacies received the most attention. Participants talked about the transportation requirements of attracting new industry and serving the expanding shipping needs of agriculture. In the area of moving people, public transit received a lot of interest, although some recognized the limited potential in Fresno County of rail and bus service because of low density land use patterns. Participants offered many transportation-related suggestions for the General Plan, including an international cargo facility at the Fresno Airport, better east-west highway linkage, and road improvements in specific locations.

6. Protect the water supply—10 groups

Limited water supply was seen as the most severe resource constraint on accommodating the county’s future population growth. Many participants discussed the increasing competition for this resource between agricultural and urban consumers, noting also how pressures from outside sources—federal and state governments, and southern California—made it even more difficult to allocate

the supply locally in a fair manner. Less attention was given to issues of water quality.

7. Collaborate regionally—8 groups

Distressed by what they perceived as excessive conflict among the separate local governments in Fresno County, participants called for more intergovernmental collaboration. Most comments in this area concerned county-city relations especially in the Fresno-Clovis area, but this idea also extended to Madera County and the impacts of its development actions on Fresno County jurisdictions. Forms of collaboration that were favored include service consolidation, common development standards in county and city jurisdictions, revenue sharing, joint planning of development, and joint efforts to attract new industry and business. Some participants also advocated greater cooperation between local governments and the private sector in business recruitment and other matters.

8. Apply the plan consistently—6 groups

The content of the General Plan is less important than how it is applied by local decision makers, many participants suggested. They believed that too many decisions of city and county governments approving development were ad hoc in nature, deviating from General Plan policies and standards and influenced by extraneous considerations. Among the suggestions of those who spoke about this issue were more “teeth” in the updated county plan, having a committee charged with overseeing plan implementation, a closer relationship to city plans, and more acceptance of planning commission recommendations.

9. Improve air quality—6 groups

For many focus group participants, the most striking impact of Fresno County’s population growth is the deterioration of air quality. The problem is inherent in land use patterns (sprawl) and auto-oriented transportation. No part of the county seems to enjoy good air quality year-around, some participants suggested, noting the spread of pollution into mountain areas. Despite the reduction in emissions per vehicle, air quality is expected to worsen as urbanization continues.

Group Variations

While similarities more than differences marked the discussions across the 15 separate focus groups, a few variations in group emphasis are worth noting. Tables II-1 and II-2 list by individual groups the major themes given serious attention. Difference in emphasis include:

- Farmland and water were top items of discussion in all groups that included persons directly involved in farming—*Agriculture, Clovis, Eastside, Highway 99 and Westside.*

Table II-1: Major Themes Emphasized by Countywide Groups

	Agriculture	Business-I	Business-II	Development	Environment
Jobs, Economic Development					
Efficient Development					
Farmland Protection					
Direct Growth					
Transportation					
Water					
Regional Cooperation					
Plan Consistency					
Air Quality					

Table II-2: Major Themes Emphasized by Community Groups

	Clovis	East Side	Foot-hills	Fresno North	Fresno South-east	Fresno South-west	High-way 99	North East	Near West	West Side
Jobs, Economic Development										
Efficient Development										
Direct Growth										
Farmland Protection										
Transportation										
Water										
Regional Cooperation										
Plan Consistency										
Air Quality										

- On the other hand, farmland protection and the related issue of water were *not* major themes in four groups with *no* representation from agriculture—*Business II, Development, FresnoSoutheast, and FresnoSouthwest.*
- The Westside group, representing the area most remote from the heavily populated Fresno-Clovis urbanized area, paid the least attention to concerns about the direction and efficiency of urbanization. While they were major themes in virtually all other groups, they were most emphasized in the discussions of the five local groups that represented the urbanized area—*Clovis, FresnoNorth, FresnoSoutheast, FresnoSouthwest, and Nearwest.*
- Some differences separate the *Environment* group from three other countywide groups, *Business I, II, and Development.* Farmland protection and water were more important concerns in the *Environment* than in the other

groups, while jobs/economic development and transportation were not emphasized here but were in the *Business* and *Development* groups.

These were slight differences, however, compared to the commonalty of issues across group lines.

Other Themes

The nine major themes described above do not include the full range of topics brought up in the focus groups. Certain other issues were of major importance to a few groups and were discussed in some detail—such as habitat protection, farmworker housing, and crime. Other items were the concern of only individual participants or were briefly discussed in many groups. Here are these secondary themes, listed in order of frequency of mention:

1. *Public Services* (*Business I, Business II, Eastside, FresnoNorth, Highway 99, FresnoSouthwest, Northeast, Foothills, Nearwest, Westside*)

Nearly all the groups envisioned that increased population would strain the county's ability to provide public services. In addition to the water and transportation issues described above, participants were also concerned about the impacts on schools, social services and health care.

2. *Public Safety* (*FresnoSoutheast, Eastside, FresnoNorth, Foothills, Westside, Agriculture, Business II, Development*)

Participants in several groups were concerned with the current crime problems of their areas and feared that the crime levels would worsen with an increasing population. They anticipated higher costs for public safety services as a result.

3. *San Joaquin River Bottom* (*Highway 99, FresnoNorth, Northeast, Environment, Agriculture, Clovis*)

In groups where public access to the San Joaquin River Bottom emerged as an important issue, participants held strong and often conflicting views about whether and how the land on the river bottom should be preserved or developed.

4. *Parks/Open Space* (*Clovis, Highway 99, Northeast, Environment, Foothills*)

Open space and the need for more local and regional parks was cited by some groups as an important aspect of quality of life in Fresno County. Participants in two groups suggested that there should be more county funding for parks.

5. *Farm Labor Housing* (*Agriculture, Eastside, Business I, Northeast, FresnoSouthwest*)

Several groups favored increased availability of farmworker housing, pointing out that many agricultural workers live in crowded conditions in towns distant from

the fields in which they work. Other housing issues, particularly the need for affordable housing, came up in the FresnoSouthwest and Northeast groups.

6. *Development Costs* (*Highway 99, Environment, Foothills, Nearwest, Northeast*)

Some participants said that development should “pay its own way,” mitigate its impacts, and contribute to the costs of parks, schools, services and infrastructure for new residents.

7. *Quality of Life* (*FresnoSoutheast, Environment, Foothills, Nearwest, Development*)

Increased population was predicted to negatively impact the “quality of life” in Fresno County, although this term was not always clearly defined. Most often it was mentioned in relation to environmental values, including parks and scenic amenities. In some groups it was also associated with the importance of providing arts and other cultural amenities as a way to attract new businesses to the area. In others, it meant a rural lifestyle, sense of community and neighborliness.

8. *Vision/Goals* (*FresnoSoutheast, Business I, Business II, Development*)

Some participants emphasized the need for a philosophical base or long term vision for economic development and resource use in the county, along with the political leadership to carry it through. They suggested that General Plan policies should be driven by and organized around these overall goals and strategies.

9. *Local Government Financing* (*Clovis, Northeast, Foothills*)

In looking at the future of the county, some participants were concerned that already restricted local government revenues would be inadequate to fund the public services needed to support a growing population. They also discussed the problems of land use “Fiscalization”—the tendency to make land use decisions on the basis of revenue needs.

10. *Habitat/Wildlife* (*Environment, Foothills, Westside*)

The degradation of natural resources was of particular concern to these groups. They feared that urban sprawl and the parcelization of rangeland, especially in the foothills, would contribute to the loss and fragmentation of plant and animal habitat.

11. *Coping With Immigration* (*FresnoSouthwest, Highway 99*)

Anticipating further increases in the number of immigrants from foreign lands, participants in the Highway 99 group feared that their contributions to the local economy would be offset by additional demands on welfare and other public services. Participants in the FresnoSouthwest group also pointed out that increased immigration would exacerbate current problems of multiple languages in local schools.

Local Issues

Countywide issues and those pertinent to the Fresno-Clovis urbanized area dominated the focus group discussions. But some attention also was devoted to more localized concerns. This was most apparent in three community groups—FresnoSouthwest, Foothills, and Nearwest.

FresnoSouthwest

Participants in this group did not clearly distinguish between the problems of the southwest portion of Fresno and the adjacent unincorporated area. They complained about a pattern of neglect by both the city of Fresno and county government. Protection of agricultural land, they said, has stymied residential and commercial development in favor of growth to the northeast and northwest. Minority populations are already concentrated in the southwest, the area which will most likely be the point of entry for new foreign immigrants to the county. They suggested that the General Plan designate infrastructure improvements and land for industry accessible to southwest residents and give priority to affordable housing.

Foothills

Participants in the Foothills group perceive the isolation of their area from the rest of the county. Several referred to past attempts to form a separate county in this area. Foothill and mountain residents believe that they are short-changed in receiving county services, and complain that county government neglects them to the benefit of the urbanized Fresno-Clovis area. This group was particularly concerned with factors that affect their rural quality of life, such as maintaining open space.

Nearwest

The Nearwest group focused on the relationship of this unincorporated area to the adjacent city of Fresno, one perceived as largely negative. Nearwest participants were especially critical of city efforts to annex their area.

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